

FLIGHT

&
The AIRCRAFT
ENGINEER.

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

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EDITORIAL COMMENT.



LAST week we reproduced under this regular heading a paragraph from our sister journal, the *Auto.*, in which reference was made to questions asked in the House of Commons relative to aerial policy. Major Anstruther-Gray had asked the then Secretary of State for War whether, in view of the progress made by foreign Powers in the problems of aerial flight, the Secretary for War would consider the desirability of increasing the grant for research on the subject.

"Ten Years Ago." Mr. (now Lord) Haldane was at the time War Minister, and his reply reads ludicrously in the light of after events. His answer was: "The importance of this subject is recognised and experiments are in progress. It is not considered necessary or desirable to increase the grant of money available this year for this subject. My advisers and I are fully aware of the nature of work that is being done elsewhere." And this was only seven years before the outbreak of the greatest war in history—a war, too, that will in all human probability be decided by aerial supremacy.

We have no intention of harking back to a criticism of the ostrich-like attitude of the War Office in those remote days—for remote they were in the history of the development of aerial navigation. In fact, now that it is possible to view that attitude in strict perspective, it is possible to find some small excuse for it, though we should not go so far as to endorse a plea of justification. It is only fair to recall that at the time aviation was very much in its infancy, and to visualise its ultimate development needed more imagination and a wider prevision than is given to the average politician to possess. Above the paragraph from which we have quoted, we find recorded the then extremely interesting fact that at the Issy aerodrome M. Blériot had actually succeeded, during the previous week, in making several flights, the best of which seems to have been one of 143 metres! After all, it is hardly surprising that so pedantic a politician as Lord Haldane should have failed at the time to grasp the vast potentialities of what was then a very new science. Nor, perhaps, would it have been any more reasonable to expect his "expert" advisers to have been possessed of the imagination in which he himself was deficient. At that time the average War Office official of high rank was more or less hide-bound by the traditions of a long past. He lived, moved and had his official existence in a groove, and the habit of taking the line of least resistance had become ingrained. Moreover, the War Office did not believe then that this country would ever become involved in another European war, and its interest in the higher developments of the art of war was thus more academic than active, so that the progress of aviation was a matter which could safely be left to other countries more intimately concerned with readiness for instant war, leaving us to come in on the tail of their inventive research. But a lot of water has run beneath the bridges since then—and the War Office has learnt much.

The real interest of the quotation, however, does not lie so much in the record of official-blindness it discloses, and for which, as we have said, there is some excuse to be found under all the circumstances of the times. To our way of thinking, that interest is more in the startling contrast between then and now and in the brilliant light it throws on the record of progress made in the meantime. Then, the Government would not find more than pence to carry on experimental work. Now it passes credits by millions of pounds at a time for aerial purposes. Then

it was thought not only worthy of record, but something absolutely wonderful, that an experimenter—for there were no aviators then as we understand the term now—should be able to make a flight of 150 yards on a heavier-than-air machine. Now it is absolutely true to say that we simply do not know the ultimate capacity for duration of flight of the aeroplane of to-day. Ten years ago we did not know what altitude was. At what height above the ground Blériot made his 150 yards "jumps" we do not remember, but in any case it could not have been many feet. Nowadays statements that aerial combats have taken place at 20,000 ft. above *terra firma* leave us cold—questions of altitude have ceased to appeal to the imagination.

Even the least instructed man in the street realises that aviation has made enormous strides in the decade that has passed since the time these paragraphs which we have taken as our text first appeared, but it is really only by going back in our history in this way that we are able to begin to appreciate how great the sum of progress has been. We have a very strong belief in these references to past history as the best means of pointing the moral of progress. After all, comparison is the only real method by which we can assess present values where progress has been so sudden and so rapid as it has been in the development of aerial navigation.

Scientific and Industrial Research.

The Report for the year 1916-1917 of the Committee of the Privy Council for Scientific and Industrial Research has just been published by H.M. Stationery Office. From a mass of very interesting matter, affecting research work in connection with almost all of our staple industries, it is not possible to cull much that is directly of interest to those who are principally concerned with any single one. It is not that the Committee has not dealt well and truly with each, but the nature of the Report is such that it can only give a very cursory review of the details of the Committee's work. We gather, however, that a considerable amount of attention has been given, and with good results, to the matter of light alloys. As the Report tells us, much of this work overlaps and interlocks with that required for immediate aircraft purposes, but it was found possible to investigate a number of matters of broad and fundamental interest in connection with the whole question of aluminium alloys and their future use and development. These investigations have been actually carried out by the staff of the National Physical Laboratory, to which the Committee has made a further grant of money for the continuance of the work.

In the matter of the encouragement of the inventor, we are glad to note that the Committee is inclined to take a broad, even a generous view. As the Report puts it, the problem is one of undoubted importance, but also one of considerable difficulty. The cases which come before the Committee fall into two, or possibly three, classes. In some, application has been made for money to develop patents commercially. Obviously, it is not the business of the State to finance inventors and patentees in order to commercially exploit their inventions. In another class of case, however, in which funds are needed for working out on a full scale a process or device already patented, the Committee thinks that a grant might

be made for the purpose, since this clearly falls within the meaning of industrial research. This is as it should be, for undoubtedly the development of a useful invention or process is to the ultimate good of the State, and it is no more than right that the State should assist, under proper safeguards, in the working out of the device or process in question, where the inventor is unable to do it for himself owing to lack of necessary funds. It is a fact that many inventions which might have been of inestimable benefit have died of inanition owing to the inability of their sponsors to see them through, and the State has been the poorer in consequence. Of course, it cannot be expected that the State should take up and finance all and every invention which appears to promise well, but it is here that the Committee on Research comes in to decide what is worth while and what is not, as indeed is pointed out in the Report under discussion. It is manifest from the whole tone of that portion of the Report which deals with the matter that the Committee is fully alive to the needs of the industrial future and is prepared to err a little by taking the broader view, which is very much to the good.

There is one other matter touched upon by the Report in which the aircraft industry has an intimate interest. That is the question of fuel research. It does not appear, however, that oil fuel has been the subject of specific research, though we gather between the lines that this is so. There is, however, a notable absence of the names of any of the acknowledged authorities on oil fuel from the composition of the sub-committees appointed to deal with fuel research, and this is an omission which we should like to see rectified. The importance of oil fuel in the future, in view of the enormous development certain to take effect both in motor traction, in the air and at sea, surely justifies the most careful enquiry and research along the lines of a greater production of British liquid fuel. We do not make this remark in any spirit of criticism, the more so because there is collateral evidence to show that the subject is receiving at last the attention it deserves, but there is nothing like outward and visible signs in these matters.

The New Political Party.

There is only one thing we do not like about the manifesto recently issued by a number of members of both Houses of Parliament and others who have translated their weariness of the old political system into the formation of another organisation. That is that they have chosen to call it the "National Party." We suppose the use of the objectionable word was unavoidable, our political system being constituted as it is, but we could wish it had been possible to christen it by any other name than "Party." The whole nation, with the exception of the professional politicians and the hangers-on of politics who stand to make something out of the game, is utterly sick of the word and all it implies. Still, we will not quarrel with the name if the new Party will live up to its professions of "honest administration, a pure political system, and no sale of honours." There are other things, quite as acceptable to the politician-weary citizen as these, but as they necessarily follow on honest administration and a pure political system we need not discuss them at length.

Let us say at once that we are entirely in accord with the aims and objects of the new Party, provided

they do not connote an immediately disruptive policy. First let us get the war finished successfully, and then we do not mind what becomes of all the "Old Gangs" who let the country unprepared into the war and who consistently bungled and muddled its conduct for more than three years. There are, we think, even worse things than muddling and extravagance at a time like this, and one of them would be a political upheaval such as would certainly follow on an attempt to substitute for the present Government one formed from the new Party which is pledged to a cleaner, sweeter political life. To attempt to swap horses while we are still in the middle of the stream would be a disaster of the first magnitude. We most sincerely trust, then, that those who stand for the new order of things will content themselves in the meantime with the perfection of their organisation against the time when it will be possible to make drastic changes, even in the Constitution if need be, without danger of the results which would be almost bound to accrue from immediate and premature action.

With these qualifications we are able to extend a welcome to the new Party, for Heaven knows it is nearly time the Augean stables of British politics had the river turned through them. We have come to a pretty pass when our political system can be assailed as "Vanoc" assails it in the *Referee* of last Sunday, and when we are compelled to agree that what he says is too literally true. What he says is this: "Not all, but most of, the Members of Parliament are thinking, not of their country, but of themselves, their careers, State salaries, 'honours,' and pickings. All honour to the 128 members who

take no salaries. Politics in Britain is a fool-catching trade, like rat-catching or money-lending. The average Member of Parliament knows no language but his own; is inordinately vain; succumbs as easily as His Holiness the Pope to the skill of cosmopolitan, financial and humanitarian schemes."

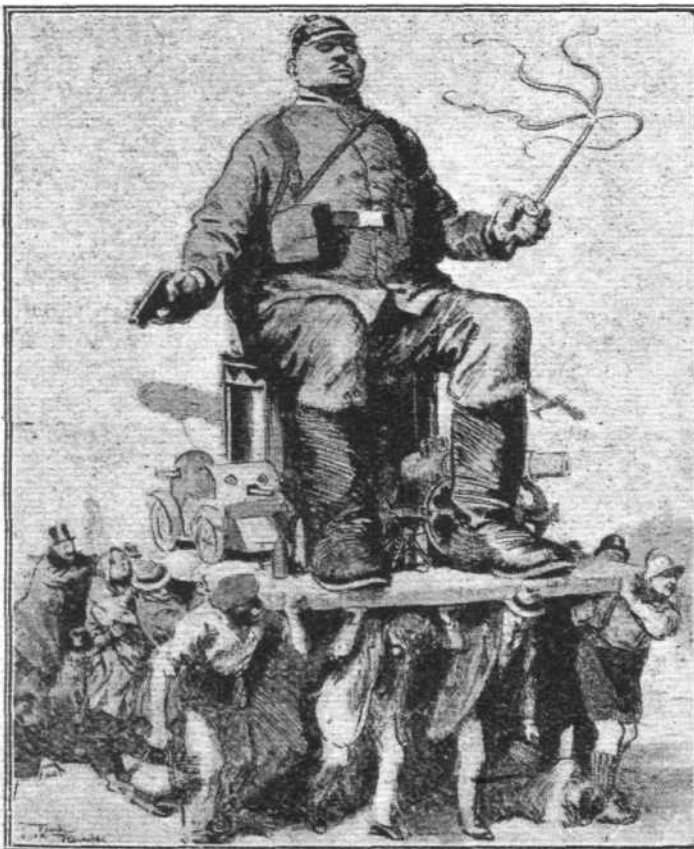
If the National Party can knock the bottom out of that sort of thing we shall be able to overlook quite a number of minor shortcomings which are bound to manifest themselves in a new organisation.

The American Reply to the Pope.

"No peace with Kaiserism" is the keynote of President Wilson's reply to the Pope's peace note. In America and in the Allied countries it has met with universal acceptance and endorsement. Even the neutrals are disposed to see in it the only possible basis of a guarantee for the future of the world's peace—as indeed it is, and as long ago as three years we said so in "FLIGHT." Mr. Wilson puts the case most admirably when he says:—

"The object of this war is to deliver the free peoples of the world from the menace and the actual power of a vast military establishment, controlled by an irresponsible Government which, having secretly planned to dominate the world, proceeded to carry the plan out without regard either to the sacred obligations of treaty or the long-established practices and long cherished principles of international action and honour; which chose its own time for the war; delivered its blow fiercely and suddenly; stopped at no barrier either of law or of mercy; swept a whole continent within the tide of blood, not the blood of soldiers only, but the blood of innocent women and children, also, and of the helpless poor; and now stands baulked, but not defeated, the enemy of four-fifths of the world.

"This power is not the German people. It is the ruthless master of the German people. It is no business of ours



Militarism.

WHICH?

The World Set Free.

The above two very suggestive drawings by Frank Reynolds are particularly appropriate just now, in view of the very outspoken reply of Mr. Wilson, the President of the United States, to the Pope's futile appeal for a German peace. These two clever drawings were published towards the end of 1914 as forming one of the series of 12 pictures for the 1915 Almanac, published annually by Messrs. Abdulla and Co., Ltd., the well-known cigarette firm, by whose permission we now reproduce the above. The drawings were significant at that date, and are still more significant at the present moment.

how that great people came under its control or submitted to its temporary zest, to the domination of its purpose; but it is our business to see to it that the history of the rest of the world is no longer left to its handling."

For our own part, there needs nothing to be added or to be taken away from this admirably clear statement of the objects for which the Allies are fighting and for which they will continue to fight until the freedom of the world from the domination of militarist castes and parties has been accomplished. "We cannot take the word of the present rulers of Germany unless supported by the will of the German people themselves," says Mr. Wilson in his reply to the Vatican. That sums up the whole position as it exists as between the Allies on the one side and the Central European coalition on the other. It leaves the way open for a discussion of a peace basis which can endure. It goes farther, for it actually points the direction the German people must take if they sincerely desire a lasting peace and to be once more admitted to the comity of nations. They are free to take their choice, and their fate is now in their own hands.

It would be idle to hope that the full realisation that it is not the German people but the German system with which we are at war should sink into the German mind at once, or even that were it to so sink in immediate results would follow. We can scarcely hope for a revolution in Germany to follow hard on the heels of even so clear a statement of the Allied war aims as is contained in Mr. Wilson's answer to the Pope. The Hun will take a lot more hammering before he will consent to see the position as it really is, and, frankly, we do not see how it could be otherwise. Germany is well on the high road to defeat in the field, but it would be foolish to delude ourselves into the belief that she is already so far beaten that she is willing, now or in the immediate future, to effect a complete change in her system of Government in order to secure a worse peace than she is convinced she can obtain by a vigorous prosecution of the war. As a matter of fact, it is only necessary to read the comments of the German Press on the Note to understand the state of mind of the people, for in spite of the fact that the Press in Germany is subject to much stricter control in the expression of opinion than our own, we nevertheless believe that it does supply us with a fair reflex of German public opinion. Almost without exception, the Press is agreed in describing Mr. Wilson's Note as an "impertinence," and accuses him of a desire to bring about a lengthy war in the interests of American finance, and the idea that there can be any change in Germany's system of government, preliminary to a peace by negotiation, is scouted with contempt. Doubtless the tune will change when the Germans have had time to examine and properly assimilate the precise meaning of what is so ably set forth in the President's Note, but we shall have to wait for that—and in the meantime get on with the war. It is hopeful for the future trend of German opinion that there is one prominent exception to the otherwise unanimous chorus of abuse with which the American Note has been received in Germany. The Socialist *Vorwärts* not only refrains from insult and abuse, but it prints President Wilson's Note in full on its front page and gives in heavy black type every reference differentiating the German people from their present rulers, while its comments go very much farther than might be expected in a country where liberty of expression is apt to lead straight in

through the prison doors. In the course of its comments the *Vorwärts* says:—

"Are we Germans to allow it to be said that those other countries will not negotiate with us because we are a nation of slaves, unable to bring proper expression of our own will? Do we deserve it after years of suffering, achievements, and sacrifices immeasurable and countless? Is a single one of us ready to go out with a knapsack and gun to stand as a sentinel at the barbed wire entanglements with the idea in his mind that all this need no longer continue if we would only agree to the same form of Government as the rest of the world?"

"Let those answer this question according to their consciences who have the fate of the German nation in their hands. Will the German Reichstag recognise the way which is plainly opened before it by the developments of events? Only a fool would attribute to this most patient of all Parliaments a vain lust of power. This Reichstag has never willed to have power, but now it must will it, because the German people who called it into existence desire it of it, and because its path to power is the path of the world to peace."

When the whole of Germany thinks along these lines, and translates its thoughts into deeds, the way to peace will be open—unless by the time she has collected her thoughts peace has been dictated at the points of the Allies' bayonets.

The Recruiting Difficulty.

When it was announced that it was proposed to transfer the work of recruiting from the War Office to a civilian authority, we ventured to doubt if any real good would be achieved by the change. As we pointed out, the most likely thing to occur would be that the military recruiting staff would discard its khaki, get into civilian clothing and carry on pretty much as before the alteration. That seems to be what is happening, though the full details of the transfer from the military to the civilian recruiting authority have not yet been completed. A correspondent of the *Daily Telegraph* points out that there is a difficulty with the medical boards. It was considered inadvisable that any one department should have control of the work of "bringing up the men," and at the same time of the authority set up to adjudicate on their fitness for service whether from the point of view of health or domestic considerations. To get over the difficulty the suggestion has been made that medical advisers should sit on the County Appeal Tribunals. But unless the War Office alters its policy, this new proposal would not be considered as cutting the knot. When the recruit now dons khaki he is handed over to the War Office authorities, who deal with him as they please, so that a man passed for sedentary work, for example, for which he is quite fit may find himself undergoing the fatigue of long marches, for which he is quite unfit, with the result that he breaks down, and instead of being a military asset becomes a financial burden on the country. So that the change in the machinery of recruiting does not seem to go very far towards the amelioration of the state of things with which it was designed to cope. The scandal of the past was that large numbers of men, hopelessly unfit for military service of any kind, were passed into the army only to be drafted into hospital after a week or two of service, and ultimately to be invalided out, possibly entirely broken in health and of no more use to the country either as soldiers or civilians. What is wanted is not so much the change over to another authority as more careful and sympathetic consideration of each individual case by the medical boards.

The real remedy, as we indicated many weeks ago, is to place more definite individual responsibility on the doctors charged with the task of certifying as to a man's fitness or otherwise,

HONOURS.

Honours for the R.N.A.S.

In the list of naval honours announced in the *London Gazette* of August 29th, the following appeared:—

The King has been pleased to approve of the award of a Bar to the Distinguished Service Order to the following officer:—

Sqdn. Cdr. K. S. SAVORY, D.S.O., R.N.A.S.—In recognition of his services on the night of July 9th, 1917, when a successful attack was carried out against the Turkish-German fleet lying off Constantinople. When the "Goeben," surrounded by warships (including submarines), had been located, the attack was made from a height of 800 ft. Direct hits were obtained on the "Goeben" and on the other enemy ships near her. Big explosions took place on board them, followed by a heavy conflagration. The War Office at Constantinople was also attacked, and a direct hit obtained.

Distinguished Service Cross.

Flt. Lt. H. McCLELLAND, R.N.A.S., and Lt. P. T. RAWLINGS, R.N.V.R.—In recognition of their services on the night of July 9th, 1917, when a successful attack was carried out against the Turkish-German fleet lying off Constantinople. When the "Goeben," surrounded by warships (including submarines), had been located, the attack was made from a height of 800 ft. Direct hits were obtained on the "Goeben" and on the other enemy ships near her. Big explosions took place on board them, followed by a heavy conflagration. The War Office at Constantinople was also attacked, and a direct hit obtained.

Flt. Sub-Lt. L. N. GLAISBY, R.N.A.S.—In recognition of his services on July 20th, 1917, during a bombing raid on Aertrycke aerodrome. He was attacked by a hostile machine whilst over the target, and fought an engagement lasting 20 minutes. Flt. Sub-Lt. Glaisby was wounded in the head, and his observer was shot through the arm shortly after the engagement began, but they succeeded in driving the enemy machine down in a vertical nose-dive.

Flt. Sub-Lt. (act. Flt. Lt.) A. W. CARTER, R.N.A.S.—This officer has at all times led his patrols with great courage, skill and pertinacity, often engaging superior numbers of hostile aircraft. On July 22nd, 1917, he engaged single-handed for half-an-hour five enemy scouts, which he prevented from carrying out a reconnaissance. On July 24th, 1917, with one other pilot, he attacked four enemy aircraft, one of which he drove down completely out of control.

Flt. Lt. L. G. SIEVEKING, R.N.A.S., and Flt. Sub-Lt. J. R. ALAN, R.N.A.S.—In recognition of their services in dropping bombs on enemy railway lines and ammunition dumps on the night of July 11th-12th, 1917.

Obsr. Lt. R. G. ST. JOHN, R.N.A.S.—In recognition of his services on July 20th, 1917, during a bombing raid on Aertrycke aerodrome. After the bombs had been dropped on the objective, his machine was attacked by an Albatros Scout, which he shot down at point-blank range. Another hostile machine then attacked, but was driven off.

Bar to the D.S.C.

Flt. Cdr. T. F. LE MESURIER, D.S.C., R.N.A.S.—For consistent skill and courage in leading his flight on bombing raids, particularly on July 28th, 1917.

The following awards have also been approved:—

Distinguished Service Medal.

O.N. F16741 A.C., 2nd Gr., L. N. SAW; O.N. F3652 Act. Air-Mech., 1st Gr., J. McKimmie Young; O.N. F2763 Air-Mech., 1st Gr., P. J. ADKINS; O.N. F1997 Air-Mech., 1st Gr., F. J. GEORGE; O.N. F348 C.P.O. Mech., 2nd Gr., J. L. ADAMS; O.N. F9156 Ldg. Mech. B. CROMACK.

Action with Enemy Submarine.

The following have been mentioned in despatches:—

Flt. Sub-Lt. H. B. SMITH, R.N.A.S.
O.N. F13482 Air-Mech., 2nd Gr., E. W. ARGENT.

The following decorations have been conferred by the Allied Powers on officers of the British Naval Forces for distinguished services rendered during the war:—

CONFERRED BY THE PRESIDENT OF THE FRENCH REPUBLIC.

Croix de Guerre.

Flt. Lt. W. E. ROBINSON, R.N.A.S.; Sub-Lt. J. C. A. JENKS.

—CONFERRED BY THE KING OF THE BELGIANS.

Order of Leopold.

Chevalier.

Flt. Cdr. S. V. SIPPÉ, D.S.O., R.N.A.S.

ORDER OF THE CROWN.

Chevalier.

Sqdrn. Cdr. R. L. G. MARIX, D.S.O., R.N.A.S.; Sqdrn. Cdr. J. P. WILSON, D.S.C., R.N.A.S.; Flt. Cdr. J. S. MILLS, D.S.C., R.N.A.S.; Flt. Lt. R. H. COLLETT, D.S.C., R.N.A.S.; Lt. A. G. JOLLEY, R.N.V.R.

The King has given unrestricted permission to the officers concerned to wear the decorations in question.

Honours for the R.F.C.

In the *London Gazette* of August 31st it was announced that the following are among the decorations and medals awarded by the Allied Powers at various dates to the British Forces for distinguished services rendered during the course of the campaign. The King has given unrestricted permission in all cases to wear the decorations and medals in question:—

PRESENTED BY THE PRESIDENT OF THE FRENCH REPUBLIC.

Legion d'Honneur—Croix de Chevalier.

Brev. Maj. (temp. Lt. Col.) J. E. TENNANT, M.C., Scots Gds. and R.F.C.

Medaille Militaire.

Z92 Flight Sergt. A. J. ADAMS, R.F.C.

133 2nd Gr. C.P.O.E. A. H. SIMMONDS, R.N.A.S.

PRESENTED BY THE KING OF ITALY.

Silver Medal for Military Valour.

Lieut. (temp. Capt.) G. D. GARDNER, Yorks. R. and R.F.C.

It was announced in the *London Gazette* of August 29th that the King has been pleased to award the Meritorious Service Medal to the following warrant officers, non-commissioned officers and men in recognition of valuable services rendered with the armies in the field during the present war:—

1859 Corpl. R. COLWILL, R.F.C.; 8268 1st Cl. A.M. J. F. WILDER, R.F.C.; 2567 Sgt. H. H. WRIGHT, R.F.C.

Awarded the Meritorious Service Medal, for valuable services rendered with the armies in the field, in Mesopotamia:—

78169 Corpl. P. PHILLIPS, R.F.C.



"X" AIRCRAFT RAIDS.

"X" 71 Raid (September 2nd).

THE following *communiqué* was issued by the Field-Marshal Commanding-in-Chief, Home Forces, 1 a.m., September 3rd:—

"Hostile aeroplanes crossed the East Kent Coast at about 11.15 p.m. to-night, and flew seawards a few minutes later.

"A few bombs were dropped. There is no detailed information as regards casualties, but they are believed to be small."

10.23 a.m.

"Last night's raid was carried out by only one enemy aeroplane, which bombed Dover at a few minutes after 11 p.m. Seven bombs were dropped, one man was killed, and four women and two children slightly injured.

"X" 72 Raid (September 3rd).

11.45 p.m.

"Enemy aeroplanes crossed the South-East Coast at about 11 p.m., and dropped bombs at various places. No reports of casualties or damage have been received as yet. A number of our machines went up in pursuit."

"September 4th, 1 p.m.

"Last night's raid was carried out by about six enemy aeroplanes, which proceeded up the south bank of the Thames estuary as far as Chatham. Bombs were dropped in the Isle of Thanet and in the Sheerness-Chatham area between 10.40 and 11.30 p.m. There were no Army casualties.

"Civilian casualties reported at present are: Killed, 1; injured, 6. Material damage was slight. Our machines went up and anti-aircraft guns came into action, but without result."

"Admiralty, September 4th.

"In the course of the air raid last night the following casualties were caused to naval ratings: Killed, 107; wounded, 86."

German Version.

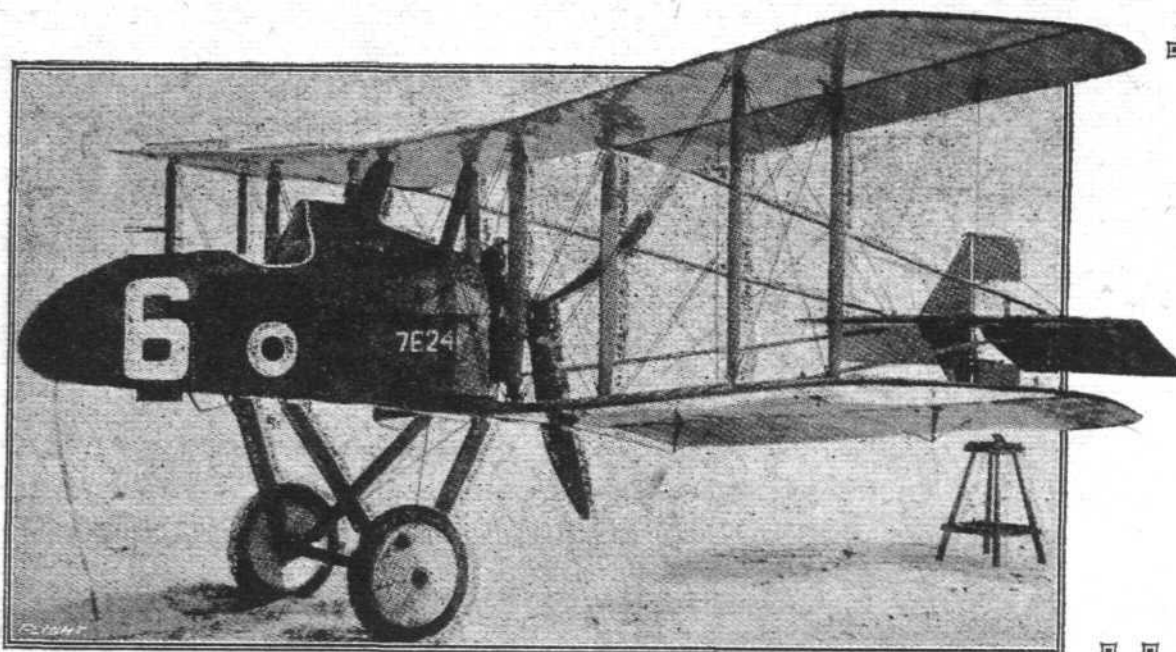
"September 4th.

"Yesterday Dover and last night Chatham, Sheerness and Ramsgate were attacked with bombs by our aeroplanes."

A "DE HAVILLAND" SINGLE-SEATER FIGHTER.

AN interesting illustrated description of a British biplane, appears in a German aeronautical contemporary, which we are now able to reproduce. The data relating to the "de Havilland," so described

fighter. The main desiderata in such a machine were high speed, manœuverability, climb and a free field for a machine gun in a forward direction. As English aeronautical engineering was somewhat back-



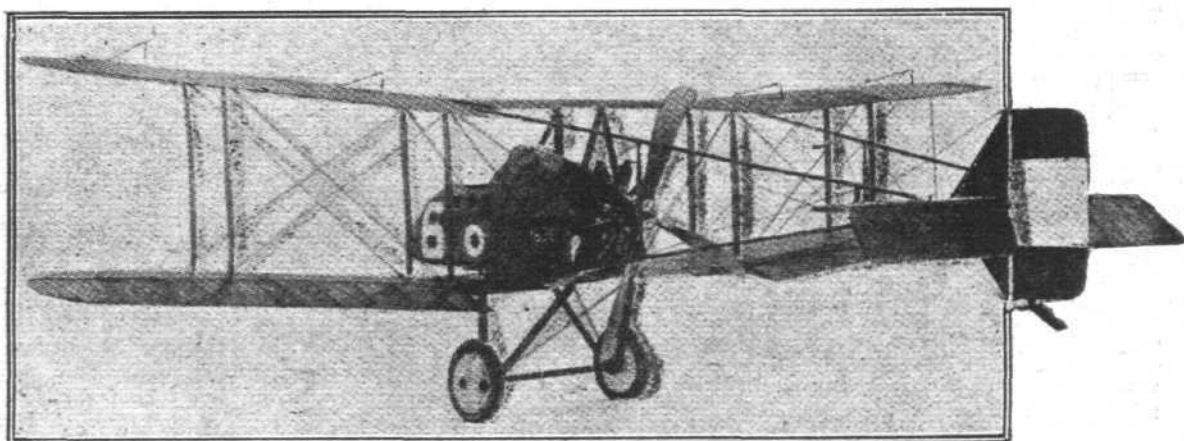
Three-quarter front view of, according to *Flug-sport*, "de Havilland" fighter.

by our contemporary, are preceded by the following interesting and characteristic remarks:—

"It was difficult for the English constructors to

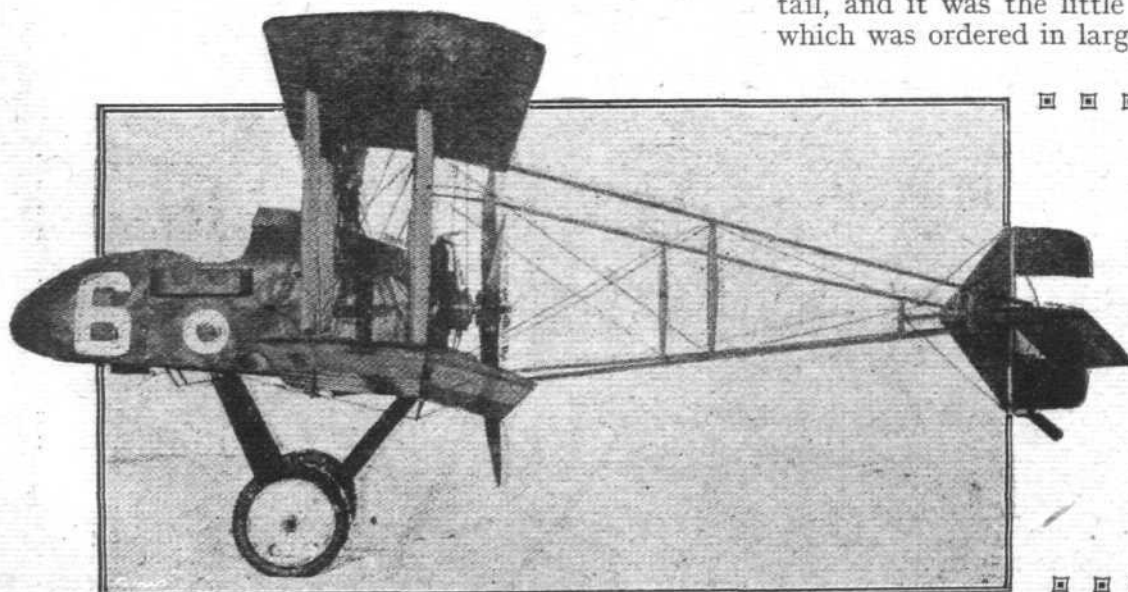
ward, especially with regard to firing through the propeller, the construction of a tractor single-seater with the engine in front had to be discarded. The

Three-quarter rear view of, according to *Flug-sport*, "de Havilland" fighter.



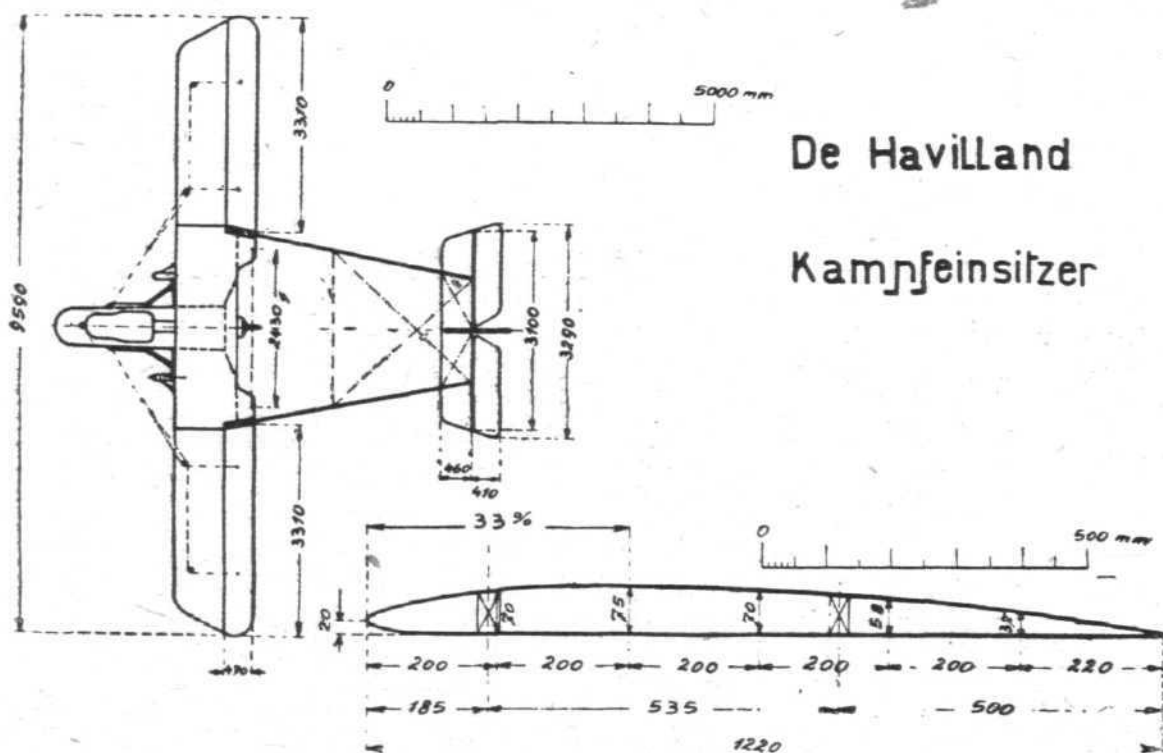
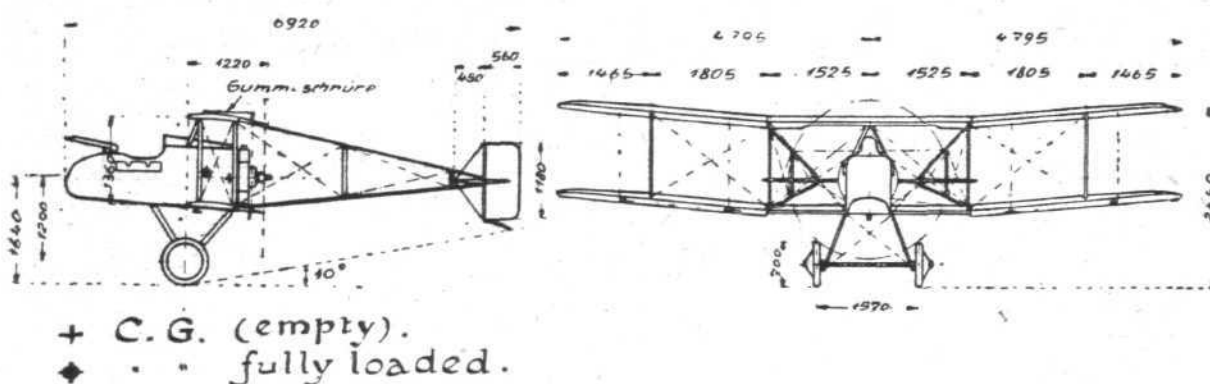
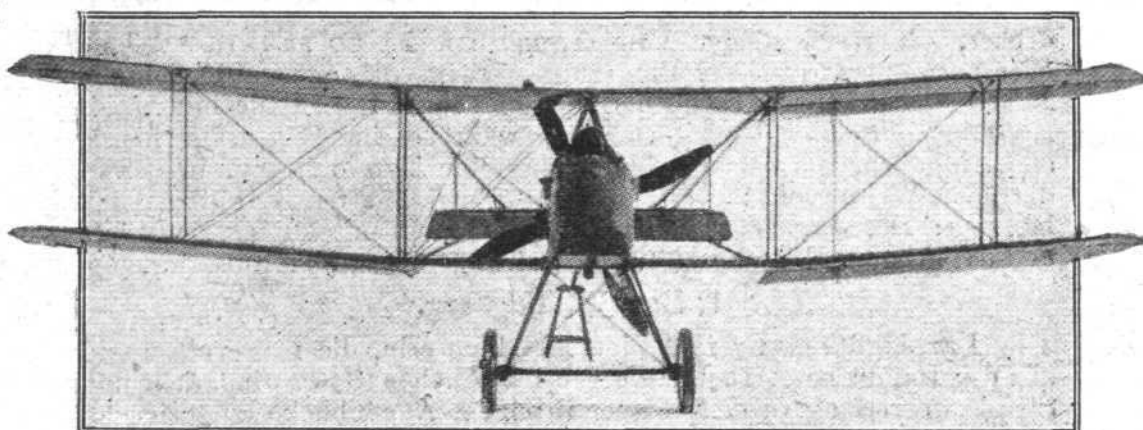
produce a machine equal to the German aeroplanes, especially as regards the production of a single-seater

result was therefore necessarily a fighter, with the screw at the rear and an open framework carrying the tail, and it was the little de Havilland single-seater which was ordered in large quantities by the British



Side view of, according to *Flug-sport*, "de Havilland" fighter.

Front view of, according to *Flugsport*, "de Havilland" fighter.



Army. As our readers know, early in 1916 these machines were rushed to the English Front, where whole squadrons were smashed through accidents."

"The de Havilland single-seater consists, as the accompanying illustrations show, of a central portion of 3.5 metres span, to which the wings are attached at a dihedral angle. There are two pairs of inter-plane struts on each side. To the point where occur the first pair of struts the tail booms are attached. Ailerons of 3.31 metres length are fitted to both planes. The ailerons are held flush with the trailing edge by rubber cords on the upper surface. The power plant consists of a 100 h.p. monosoupape driving a four-bladed screw of 2.34 metres diameter. In front of the motor are the petrol and oil tanks

and the pilot's seat, and in front of the seat is a pivot for the movable machine gun. The weight of the machine empty is 476 kilogrammes, and with $2\frac{1}{2}$ hours' fuel, pilot and machine gun, it is 722 kilogrammes. The loading is thus 35.6 kilogrammes per square metre. In spite of the great resistance of the wing bracing, the machine attains a speed of 150 kilometres per hour."

Chief Characteristics of "De Havilland" Fighter.

Power plant, 100 h.p. Gnome Monosoupape; fuel, petrol 120 litres, oil 22 litres. Area of planes (inclusive of ailerons): Top plane, 10.7 sq. m.; bottom plane, 9.6 sq. m.; total, 20.3 sq. m. Ailerons, 4×1.47 sq. m.; elevators, 1.19 sq. m.; rudder, 0.67 sq. m. Angle of incidence: Main planes, 4.5° ; tail plane, 0.8° . Weight, empty, 476 kg.; useful load, 246 kg.; total, 722 kg. Armament, one movable machine gun.

THE ROLL OF HONOUR.

Reported by the Admiralty:—

Died of Injuries.

Prob. Flight Officer W. F. Ferrier, R.N.

Previously reported Missing, now presumed Killed.

Flight Sub-Lieut. W. Allaway, R.N.

Flight-Lieut. A. S. Todd, R.N.

Previously Missing, now reported Killed.

Flight Sub-Lieut. R. G. Saunders, R.N.

Flight Sub-Lieut. C. R. Pegler, R.N.

Died from Accidental Injuries.

Aircraftman J. G. Egleshaw, 2nd Gde., F. 30578.

Missing.

Flight Sub-Lieut. H. H. Booth, N.R.

Flight Sub-Lieut. A. D. M. Lewis, R.N.

Injured.

Flight Sub-Lieut. J. W. P. Amos, R.N.

Slightly Injured.

Flight Sub-Lieut. P. M. Alexander, R.N.

Flight Sub-Lieut. A. V. Lewis, R.N.

Flight Lieut. A. A. Wallis, R.N.

Reported by the War Office:—

Killed.

2nd Lieut. D. K. Best, Essex and R.F.C.

Lieut. J. E. Cobb, A.S.C., attd. R.F.C.

2nd Lieut. F. W. Curtis, R.F.C.

Lieut. D. G. Davidson, Que., attd. R.F.C.

Lieut. F. B. Doran, Cent. Ont., attd. R.F.C.

2nd Lieut. H. Dunstan, York. and Lancs., attd. R.F.C.

2nd Lieut. H. J. Forsaith, R.F.C.

2nd Lieut. G. S. Gordon, Sco. Rif., attd. R.F.C.

2nd Lieut. C. B. Payne, R.F.A., attd. R.F.C.

2nd Lieut. H. R. Power, R. Ir. Rif., attd. R.F.C.

2nd Lieut. H. L. Sayer, R.F.A., attd. R.F.C.

Capt. A. N. Solly, R.F.C.

Lieut. F. B. Tipping, R.G.A. and R.F.C.

Lieut. J. G. Tobin-Willis, A.S.C., attd. R.F.C.

30163 2nd Air-Mech. H. V. Bennetts, R.F.C.

43584 2nd Air-Mech. A. A. G. Lovelock, R.F.C.

42822 2nd Air-Mech. L. E. Brook, R.F.C.

13076 1st Air-Mech. F. J. Moorcroft, R.F.C.

10305 Corpl. B. Lawson, R.F.C.

Previously Missing, now reported Killed.

2nd Lieut. M. G. Cole, R.F.C.

Capt. R. G. Hopwood, Rif. Brig., attd. R.F.C.

Died of Wounds.

2nd Lieut. C. R. Edson, Aus. F.C.

2nd Lieut. C. A. Hargreaves, R.F.C.

2nd Lieut. W. F. Leech, R.F.C.

2nd Lieut. G. A. S. Nicholson, R.F.C.

2nd Lieut. F. H. Thorndike, Yeo. and R.F.C.

15108 1st Air-Mech. W. F. Brown, R.F.C.

Died of Wounds as Prisoner in German hands.

2nd Lieut. K. R. Furniss, Yeo. and R.F.C.

Previously Missing, now reported Died as Prisoner in German hands.

6396 Sergt. R. Dunn, R.F.C.

Died.

28824 2nd Air-Mech. J. F. Colley, R.F.C.

52995 2nd Air-Mech. A. Humby, R.F.C.

38245 2nd Air-Mech. H. R. Kitchingman, R.F.C.

Accidentally Killed.

2nd Lieut. R. A. Davey, R.F.C.

970 Pte. S. B. Larkin, Aus. F.C.

Wounded.

2nd Lieut. C. H. Barton, R.F.C.

2nd Lieut. B. C. L. Barton, R.F.C.

Lieut. A. F. Britton, M.G.C., attd. R.F.C.

2nd Lieut. H. O. Brown, R.F.C.

Lieut. R. N. Bullock, S. Staffs. and R.F.C.

Lieut. W. R. Cooke, Can. M.G.C., attd. R.F.C.

Lieut. A. N. Donnett, R.F.C.

2nd Lieut. A. M. Epps, Aus. F.C.

Lieut. R. F. Given, Manch., attd. R.F.C.

Lieut. O. D. Hay, Gor. H. and R.F.C.

2nd Lieut. H. S. Gough, Manchester and R.F.C.

2nd Lieut. H. H. G. Lamb, Conn. Rang., attd. R.F.C.

Lieut. E. J. McCloughy, Aus. F.C.

Capt. A. L. Macfarlane, R.F.C.

2nd Lieut. G. F. Mackay, R.F.C.

2nd Lieut. G. I. L. Murray, Aus. F.C.

2nd Lieut. J. H. R. Price, Wilts., attd. R.F.C.

2nd Lieut. H. G. Scudamore, R.W. Kent, attd. R.F.C.

Lieut. M. W. Turner, R.G.A. and R.F.C.

Major H. A. Van Ryneveld, M.C., R.F.C.

2nd Lieut. E. E. Wallace, R.Fus., attd. R.F.C.

2nd Lieut. W. Walker, R.F.C.

2nd Lieut. C. W. Warman, R.F.C.

Missing.

2nd Lieut. T. W. Abbott, R.F.C.

2nd Lieut. C. P. Adamson, R.F.C.

Lieut. C. Barry, R. Ir. Rif., attd. R.F.C.

Lieut. A. E. S. Barton, R.F.A. and R.F.C.

Lieut. R. B. Carter, Alta., attd. R.F.C.

2nd Lieut. N. Bell, Ches., attd. R.F.C.

2nd Lieut. H. A. Churchward, Yeo. and R.F.C.

Capt. C. M. Clement, R.F.C.

2nd Lieut. D. P. Cox, R.F.C.

2nd Lieut. C. W. Davies, R.F.C.

2nd Lieut. R. Dutton, R.F.C.

2nd Lieut. F. B. Falkner, M.C., R. Ir. Rif., attd. R.F.C.

2nd Lieut. J. O. Fowler, R.F.C.

2nd Lieut. E. H. Garland, R.F.C.

2nd Lieut. J. W. Gillespie, R.F.C.

Lieut. A. M. T. Glover, K.O.S.B., attd. R.F.C.

Lieut. T. E. Godwin, Can. Inf., attd. R.F.C.

Lieut. L. V. Gray, Sask., attd. R.F.C.

2nd Lieut. L. O. Harel, R.F.C.

2nd Lieut. H. R. Hart-Davies, R.F.A., attd. R.F.C.

Lieut. J. Hood, A. and S. High. and R.F.C.

Lieut. W. B. Hutcheson, Can. Eng., attd. R.F.C.

Lieut. H. W. Joslyn, Sask., attd. R.F.C.

2nd Lieut. W. R. Keast, R.F.C.

Lieut. H. A. Kennedy, Can. Inf., attd. R.F.C.

2nd Lieut. T. R. Kirkness, R.F.C.

Lieut. R. T. Leighton, Yeo. and R.F.C.

2nd Lieut. J. MacDaniel, R. Dub. Fus., attd. R.F.C.

Lieut. J. L. MacFarlane, B.C., attd. R.F.C.

Lieut. P. B. McNally, Alta., attd. R.F.C.

Lieut. J. A. Manners-Smith, R.G.A., attd. R.F.C.

2nd Lieut. C. A. Moody, R.F.C.

2nd Lieut. M. Nicholson, R.F.C.

2nd Lieut. P. A. O'Brien, R.F.C.

Capt. F. D. Pemberton, R.F.A., attd. R.F.C.

2nd Lieut. R. S. Phelan, R.F.C.

2nd Lieut. S. E. Raper, Sea. High. and R.F.C.

2nd Lieut. P. H. Raney, R.F.C.

2nd Lieut. C. R. Richards, M.C., R.F.C.

2nd Lieut. J. L. Richardson, Glouc. R. and R.F.C.

Lieut. T. S. Roadley, S. Staffs., attd. R.F.C.

2nd Lieut. G. A. Rose, R.F.C.

2nd Lieut. C. M. Ross, R.F.C.

Capt. H. M. Rushworth, Lond. R. and R.F.C.

Capt. A. H. Smith, M.C., R.F.C.

Capt. G. K. Smith, M.C., R.F.C.

2nd Lieut. W. B. Styles, R.F.C.

Lieut. C. D. Thompson, H.A.C. and R.F.C.

2nd Lieut. S. Thompson, R.F.C.

2nd Lieut. S. F. Thompson, Suff. R. and R.F.C.

2nd Lieut. H. D. Turner, R.F.C.

2nd Lieut. A. Urquart, High. L.I. and R.F.C.

Capt. W. H. Walker, Can. Inf., attd. R.F.C.

Lieut. E. H. Wand, North'd F., attd. R.F.C.

2nd Lieut. H. E. A. Waring, R.F.C.

Lieut. C. B. Waters, Lond. and R.F.C.

2nd Lieut. F. E. Winsor, R.F.C.

Lieut. M. T. Wright, L.N. Lan., attd. R.F.C.

2nd Lieut. H. F. Young, Sher. For., attd. R.F.C.

Prisoner in German hands.

Lieut. A. C. Lee, Cent. Ont., attd. R.F.C.

Previously Missing, now reported Prisoners in German hands.

2nd Lieut. G. C. Atkins, R.F.C.

Lieut. O. J. Partington, R.F.C.

Lieut. E. D. Sliter, Can. Rly. Troops, attd. R.F.C.

Correction:

Reported Wounded.

2nd Lieut. E. T. L. Jones, R.F.C., should read 2nd Lieut.

E. T. Jones, R.F.C.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Club House.

The following prices have been fixed for the present by the Committee:—

| | | |
|--------------------------|----|---------------------|
| Bedroom (including Bath) | .. | 5s. each per night. |
| Breakfast | .. | 2s. 6d. |
| House Luncheon .. | .. | 2s. 6d. |
| House Dinner | .. | 3s. 6d. |

Billiard Room.

The Billiard Room is now open for the use of the Members.

THE FLYING SERVICES FUND

administered by

THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are

incapacitated on active service, and for the widows and dependants of those who are killed.

The fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 3, Clifford Street, New Bond Street, London, W. 1.

Subscriptions.

| | £ | s. | d. |
|---|--------|----|----|
| Total subscriptions received to Aug. 28th, 1917 | 11,888 | 18 | 4 |
| R. P. J. N. Parr, Collected in Buying Department of the Aircraft Manufacturing Co. .. | | 2 | 0 |
| Staff and Workers of Gwynnes, Ltd. (Forty-fifth contribution) | | 9 | 14 |

Total, September 5th, 1917 11,900 12 11

H. E. PERRIN, Secretary.

3, Clifford Street, New Bond Street, W. 1.

IN THE HANDS OF THE ENEMY.

THE following is a list, published in the official *Norddeutsche Allgemeine Zeitung*, of British machines which the Germans claim fell into their hands during the month of July:—

Forty-seven Sopwith. One-seaters.

- No. 7493 : Lieut. Fitzherbert, 55th Squadron, dead.
- Motor Clerget, 9B 2674 : Occupant burned.
- No. A 6240 : Capt. Hudson, a prisoner.
- No. 6332 : Lieut. Grosset, a prisoner.
- No. unknown : Lieut. Steldon.
- No. B 2779 : Lieut. Wordmann, wounded.
- No. B 3806 : Capt.-Lieut. Voigt, dead.
- No. unknown : Lieut. Shepherd, dead.
- No. 3528 : Lieut. Tapp, wounded.
- No. unknown : Lieut. Whyte, a prisoner.
- No. A 6216 : 2nd Lieut. James B. Hine, a prisoner.
- No. unknown : Lieut. Smith, dead.
- No. unknown : Lieut. Ellis Breid, dead.
- No. 3823 : N.C.O. Hume, a prisoner.
- No. B 3531 : Occupant dead.

In five Sopwith one-seaters the names of occupants and numbers could not be identified.

Two-seaters.

- No. A 3 : Occupants unknown.
- No. 2133/7484 : Occupants taken prisoners.
- No. unknown : Pilot unidentifiable ; Observer, Sergt. Eric Fletcher, both burned.
- No. unknown : Lieut. G. G. Mathew, a prisoner ; Lieut. E. D. Sliter, wounded.
- No. A 7490/6547 : 2nd Lieut. V. C. Coombs Taylor, 2nd Lieut. Harold Montagu, both wounded.
- No. S 8/1665 : Lieut. George Gordon, Capt. MacLennan, both dead.
- No. 2576 : Capt. G. H. Cook, Lieut. Moore, both prisoners.
- No. A 1020 : Sergt. W. S. Wikham, Lieut. H. N. Curtis, both dead.

In six Sopwith two-seaters neither the numbers nor names of the occupants could be ascertained.

Triplanes. One-seaters.

- No. 5435 : Lieut. Hillabi, dead.
- No. 6309 : Lieut. Millward, dead.
- No. 5480 : Lieut. Ramsay, dead.
- No. 6291 : Lieut. Eyre, dead.
- Motor Clerget No. 1658 : Lieut. Ramsay, dead.
- No. 6304 : Lieut. Kent, a prisoner.
- No. C.A. 5368 : Lieut. C. R. Pegler, dead.
- Motor Clerget, No. R 1236 : J. C. May, dead.
- No. 5452 : Lieut. George Valentin Austen, wounded.
- No. N5492 : Occupant dead.

In three triplanes neither the numbers nor the names of the occupants could be ascertained.

Twelve Nieuports. One-seaters.

- No. 3764 : Lieut. A. R. Adam, dead.
- No. 3544 : Occupant unknown.
- No. B 3483 : Occupant unknown.
- No. 3358/6783 : Lieut. Davis Gotfrey, 40th Squadron, a prisoner.
- No. B 1678 : J. R. Campbell, dead.
- No. B 1575 : 2nd Lieut. G. A. H. Perques, 60th Squadron, wounded.
- No. B 1694 : Lieut. F. W. Rook, 40th Squadron, dead.
- Motor le Rhone : 2nd Lieut. W. A. Bond, dead.

In four Nieuport one-seaters neither the numbers nor names of the occupants could be ascertained.

Five B.E. One-seaters.

- Motor Beardmore, No. 838 : Lieut. C. M. de Rochie, dead.

Two-seaters.

- No. 22329 : Both occupants dead.
 - No. A 7109 : Both occupants dead.
 - No. 23858 : Both occupants dead.
 - No. A 7448 : Pilot dead, observer wounded.
- Five de Havilland Scout.*
- No. A 7449 : Sergt. Walkers, N.C.O. Harris, prisoners.
 - No. unknown : 2nd Lieut. A. P. Matheson, both occupants dead
- In three de H. Scouts neither the numbers nor the names of the occupants could be identified.

Four Spad. One-seaters.

- No. A 6633 : Lieut. Douglas Weld, 19th Squadron, a prisoner.
 - No. S 1541 : Capt. Jean Lamon, wounded.
- In two Spads neither the names of occupants nor the numbers could be identified.

Three Martinsyde. One-seaters.

- No. 1572 : 2nd Lieut. G. H. Palmer, 27th Squadron, a prisoner.
- Motor Clerget, No. 2795 : Occupant burned.
- No. A 3986 : Capt. H. B. Wilkins, wounded.

Three F.E. One-seater.

- No. 4937 : Capt. MacGown, 25th Squadron, wounded.

Two-seaters.

- No. unknown : Lieut. Grafters, Machine-Gunner Bachhouse, 20th Squadron, both dead.
- Motor Rolls-Royce, No. 2275/5 : Lieut. Charles Hayers Balden, Lieut. William Harog Watt, 20th Squadron, wounded.

Two S.E. One-seaters.

- Motor Wolseley, No. 700/2233 : Occupant burned.
- Motor Wolseley, No. D 8355 : Occupant dead.

One Rumpf D.D.

The names of occupants and number could not be identified.

One Aeroplane.

- No. 5523 : Occupant dead.

ANSWERS TO CORRESPONDENTS

[As a number of letters reach us signed with initials only some of which do not give a complete address, we would point out that such communications cannot be dealt with in our columns. Full name and address, which will not be published, must always be given.—ED.]

D. S. N. (Stamford).—A single wing with an O worn on the breast is the badge of the observers, R.F.C.

E. J. R. (Edinburgh).—From your rough sketch it is impossible to decide what the machine is. Looks like a B.E. 2E or a B.E. 12.

L. P. (Westcliff).—*Longeron* is a French word, indicating the corner rail of a girder type aeroplane body. The word is frequently used in English, although sometimes "longitudinal" or "rail" is employed instead. *Cabane* is another French word which is used to indicate the pyramid or trestle-shaped structure supporting the upper and lower bracing wires on a monoplane and the centre portion of the top plane on some biplanes.

E. G. H. (Tours, France).—So far as we are aware no data have been gathered relating to propellers rendering an efficiency of more than 100 per cent. Such data should certainly be epoch-making. We have never heard of any method of so designing the wings and fuselage of an aeroplane that the action of the slip-stream would have a tendency to increase the horizontal velocity of the machine. In practice it is generally the other way about.

G. R. I. (Wallington).—"The Aeroplane Speaks," by H. Barber, would, we think, suit your requirements. A copy can be obtained from the offices of "FLIGHT." The price is 7s., post free.

L. J. P. (P.O., R.N.A.S.).—"Burple point" is, we believe, an American expression, and indicates the point at which the turbulence of the air behind a wing section becomes very pronounced. In this country it is more usual to term this point the upper critical angle of the wing section, that is to say the angle of maximum lift. Any further increase in the angle of the particular section will not increase, but will, on the contrary, decrease the lift, while the turbulence is increased.

J. H. A. (Leeds).—The point is one which we are not at liberty to discuss at present. We may point out, however, that aviators have carried with them supplies of oxygen

when flying at great heights. In order to avoid confusion it is desirable to indicate the stagger of a biplane or triplane as being so many degrees, as there can then be no doubt what is meant. This applies, of course, only to cases where the chord of all the planes is the same. When this is not the case a more explicit explanation must be given.

"Icarus" (Oldham).—In order to be able to make an intelligent study of aeronautics it is essential that you should possess a thorough knowledge of the following mathematical subjects: Arithmetic, elements of algebra, logarithms, geometry and trigonometry, and also be conversant with the subject of elementary mechanics. A number of other subjects it would be very desirable to study, but those mentioned are absolutely essential.

"Pegasus" (London, W.).—In order to be able to make an estimate of the *aileron* surface required for a given machine it is necessary to possess, in addition to full particulars of the position of the c.g. of the machine, its centre of side area, &c., data relating to the increase and decrease in lift obtainable by tilting the portion of the trailing edge represented by the *aileron* for the section employed. Then, knowing the distance of the centre of lift of the *aileron* from the c.g. of the machine, it is possible to calculate the turning moment exerted by the *ailerons* around the longitudinal axis of the aeroplane. In the absence of such information it would be better to make a close study of modern machines in order to determine what proportion of the total wing area is represented by the *ailerons*. Due allowance must, of course, be made for the proportions of the machine. The "irregular" outline of the elevators, rudders, and *ailerons* of some modern machines is, in most cases, due to an attempt on the part of the designer at relieving the pilot of most of the strain of controlling the machine by partly balancing the control surfaces. This is accomplished by, in the case of a rudder for instance, letting a portion of the area project forward of the pivoting point, thus bringing the centre of pressure of the surface nearer to the pivoting point, with a consequently smaller power required to operate the rudder.

K. H. B. (Whitley Bay).—It is usual practice to have machine guns which fire "through" the propeller fixed, although we believe that mountings and operating gear have been employed which allowed of using the gun either synchronised in the ordinary way or freely swivelling.

CORRESPONDENCE.

Parachutes for Airmen.

[1940] Your appreciative notice of the "Guardian Angel" parachute in your last week's issue, for which we sincerely thank you, and the Editorial comment under the above heading in your current issue, encourage the hope that you will permit us space to refer to the question of the establishment of training classes, which you state has arisen in correspondence now before you. Briefly stated, you have taken the view that while in the abstract the idea of the establishment of training classes to teach the use of the parachute from aeroplanes is excellent, and worthy of very careful examination, you fear that the risk to be undertaken in the curriculum of training would be far greater than could possibly be justified.

Since the appearance of our advertisements of the "Guardian Angel" parachute in the aeronautical journals, stating its suitability and qualifications for use with aeroplanes and all other aircraft, we also have received a large number of communications from British and Allied airmen, indicating a very widespread interest in these announcements.

As we are as desirous as they appear to be, for facilities to be given them for trials and instruction, we should like to have this opportunity of stating that our practical experience is quite contrary to the belief you have expressed, that airmen, undergoing training in the use of parachutes from aeroplanes, would be subjected to undue risks. We can speak, of course, only in respect of our own appliances.

As all the tests of our parachutes from different kinds of aircraft have been official, and therefore confidential, we cannot give details; but we think it permissible to state that from the very beginning, there has never once been a failure

of the parachute due to principle, nor has any airman been injured either as a pilot flying aeroplanes making the drops, or as a passenger dropping in a parachute. The only failures recorded in the whole course of the official tests made during the first 18 months were of materials. These occurred as a consequence of the increasing stresses put upon them by increasing the weight of the loads dropped, and of the speeds of the aeroplanes. Certain materials failed to stand up against shock tests, and were replaced by others that stand shock well.

It was not until we were ourselves absolutely satisfied that the design was perfected, and that all the materials of which the apparatus is composed were of the right kind and possessed an adequate margin of strength to withstand the terrific air strains to which the apparatus is subjected when dropped from aeroplanes flying at high speeds, that we permitted any person to make the attempt to come down in it. The first drop was made by that pluckiest of men, Sir Bryan Leighton, Bart., the father of the two flying sons whose loss all so greatly deplore.

The whole of the materials used in manufacture are from time to time tested by Messrs. David Kirkaldy and Sons, of 99, Southwark Street, S.E., and there is a most rigid system of inspection of all parts of the apparatus in every stage of its manufacture. We are not out to make cheap parachutes; but the best and most reliable it is possible to produce. Our watchwords are "Reliability first, Reliability second, and Reliability all the time."

We know that the "Guardian Angel" parachute is destined to come into universal use, and we want to make as great a reputation for it for quality, as is possessed by the Rolls-

Royce car. It was the death of the writer's personal friend, the Hon. Charles Rolls, in 1910, which prompted him, as an engineer, to work out the scheme of this lifeboat of the air.

We are thus justified in our confidence that there are no risks in connection with the parachute itself. In the course of training, we should recommend a two-seater aeroplane to be used, and the beginner's first drop as a parachutist made from that. It has been done a number of times without risk, and it is not conceivable how any accident could happen. The only free-fall to be encountered, is limited to the length of the shock-absorber sling—13 ft. 6 ins.—it occupies less than a second, and gives no more shock to the nerves than a dive off a spring-board into a swimming bath. The sensation given by the drop, is that of *immediate* support in the air, which instantly increases until the whole weight of the body is taken up. There is no sensation of falling, and the shock-absorber acts so perfectly that the varying stresses of the opening parachute are quite imperceptible. The whole operation of opening takes only $2\frac{1}{2}$ seconds, and there is no shock whatever to the nerves. The result of the first drop is to give the parachutist such absolute confidence in the appliance that there is no apprehension afterwards, and the act of dropping becomes a pleasurable and exhilarating exercise.

The whole art is learning how to make the drop in increasingly difficult circumstances. In any operation involving knack and skill, a trained man possesses 100 advantages over the untrained, and "the boys" can be trusted to find out for themselves quite quickly all the best ways of getting away from an aeroplane, in a parachute; so that when disaster does actually occur the really dexterous airman will, without thought, automatically select of these best ways that which is the most suitable for the occasion.

What we are looking forward to so much—to brighten a somewhat dull world—are the extraordinary "stunts" the

boys will be doing with the parachute, when they have made themselves masters of its ways and capabilities! The spectacle of the familiarities they will take with it, will be worth going very far to see. And we shall not have very long to wait for it either. Our business has been to see that when these days come, the parachute will not fail the boys—and it won't. But think of the lives it will save when they can all play with it like this!

Apart from life-saving, there is another aspect of its use, altogether—but we have already over-trespassed upon your most valuable space.

E. R. CALTHROP, M.Inst.C.E., M.I.Mech.E.,
Managing Director,

E. R. CALTHROP'S AERIAL PATENTS, LTD.
Eldon Street House, Eldon Street, E.C.

August 31st.

[There is much food for reflection in Mr. Calthrop's letter, and if any emphasis were required as to under what conditions the functions of a "Guardian Angel" parachute might usefully be employed, it is to be found in the following report in a morning paper on September 3rd, of an air incident:—

"Major Bannatyne, D.S.O., who fell with a burning aeroplane on Thursday and was admitted to Cirencester Red Cross Hospital, was slightly better yesterday than the day before, but at a late hour was still in a critical condition.

"Up alone, his engine failed at 1,000 ft., and the machine, falling, took fire. The flames reaching his legs, he climbed out of his seat and along the body of the machine to the tail. The flames caught him again and he slipped down the frame and hung by his hands. Even there the heat was almost unbearable, but just before the machine was smashed on a shed he swung clear and landed on some freshly dug ground. He is suffering from severe shock, a broken arm, and cuts about the face, head, and body."]



AIRCRAFT ENGINEERING NOTES.

Increasing Interest in Metallurgical Matters.

An indication of the increasing interest which is now being taken in metallurgical matters, is the increase—over 30 per cent. since January 1st—in the membership of the Institute of Metals. At the autumn meeting of the Institute, on Wednesday, September 19th, there are nine papers down for reading. At the opening session, between the hours of 4 p.m. and 6.30 p.m., the following communications will be presented:—

1. "Experiments on the Fatigue of Brasses." By B. Parker Haigh, D.Sc. (London).
2. "Hardness and Hardening." By Professor T. Turner, M.Sc., A.R.S.M. (Birmingham).
3. "The Effects of Heat at Various Temperatures on the Rate of Softening of cold-rolled Aluminium Sheet." By Professor H. C. H. Carpenter, M.A., Ph.D., A.R.S.M. (London), and L. Taverner, A.R.S.M. (London).
4. Note on "A Comparison Screen for Brass." By O. W. Ellis, M.Sc. (London).

At the evening session, from 8 p.m. to 10 p.m., the programme will be as follows:—

5. "Further Notes on a High Temperature Thermostat." By J. L. Haughton, M.Sc. (Teddington), and D. Hanson, M.Sc. (Teddington).
6. "Principles and Methods of a New System of Gas-Firing." By A. C. Ionides (London).
7. "Fuel Economy Possibilities in Brass-melting Furnaces." By L. C. Harvey (London).
8. "The Effect of Great Hydrostatic Pressure on the Physical Properties of Metals." By Professor Zay Jeffries, B.Sc. (Cleveland, U.S.A.).
9. Note on "The Use of Chromic Acid and Hydrogen Peroxide as an Etching Agent." By S. W. Miller (Rochester, N.Y., U.S.A.).

In connection with Mr. Ionides' Paper, a demonstration of a new system of furnace heating will be given, and it is expected that this Paper will give rise to an animated discussion on metal melting, a subject that aroused the greatest interest at the spring meeting of the Institute. Invitations to be present at the meeting, which will be held in the rooms of the Chemical Society, Burlington House, Piccadilly, W., can be obtained by non-members of the Institute of Metals on application being made to Mr. G. Shaw Scott, M.Sc., secretary and editor, 36, Victoria Street, S.W.1.

The Conservation of Tool Steel.

ONE result of the great increase in the cost of high-speed steel has been to direct attention to the fact that in thousands of planer and shaper tools, countersinks, reamers, centre drills,

screwdrivers, cutter-bars, &c., it is only necessary to use the high-speed steel at the point of stress. To make the whole tool of the high-speed tool steel entails the non-productive use of much good material, and to overcome this, the practice is increasing of welding a short length of the special tool steel on to other material, which is much less costly and yet perfectly suitable for the non-wearing parts. This development has been rendered possible by the great improvements which have taken place recently in the welding art. Not only does the system lend itself to new tools, but it permits of all the odds and ends and fractured parts of both high-speed and low-carbon steels being constantly brought back into use. When it is mentioned that the tool steel costs about 30 times as much as that which may be used for the rest of the tool, it will be seen what may be effected in the way of economy. As one of the most enterprising firms, making a speciality of welding on a scientific basis, Messrs. Barimar, Ltd., have naturally given this matter their attention, and will be glad to give particulars to any firms who are interested in the process.

Tungsten from South Africa.

WRITING of tool steel, reminds one that there are large deposits of tungsten in Southern Rhodesia at Essexvale, although, so far, practically nothing has been done in the way of mining operations on the reefs. There has been some desultory work on the alluvial or rubble wolframite, and this appears to have given rise to the idea that the deposits were only alluvial. There are, however, sixteen distinct reefs known, and eleven of them have had a little work—a few feet below the surface—done on them from time to time. In the two years after 1906, when the deposits were first prospected, a fair amount of ore was produced, but production ceased in 1909, and was not resumed for three years. Altogether about 85 tons of concentrate, valued at £7,165, has been marketed. The returns for 1916 are $2\frac{1}{2}$ tons, valued at £467, which was produced by one worker with a few natives in a 5-ft. rotary diamond washer, and by one man on another claim, who hand-picked rubble, and recovered 1,600 lbs. of wolframite.

Dealings in Chrome Ore Prohibited.

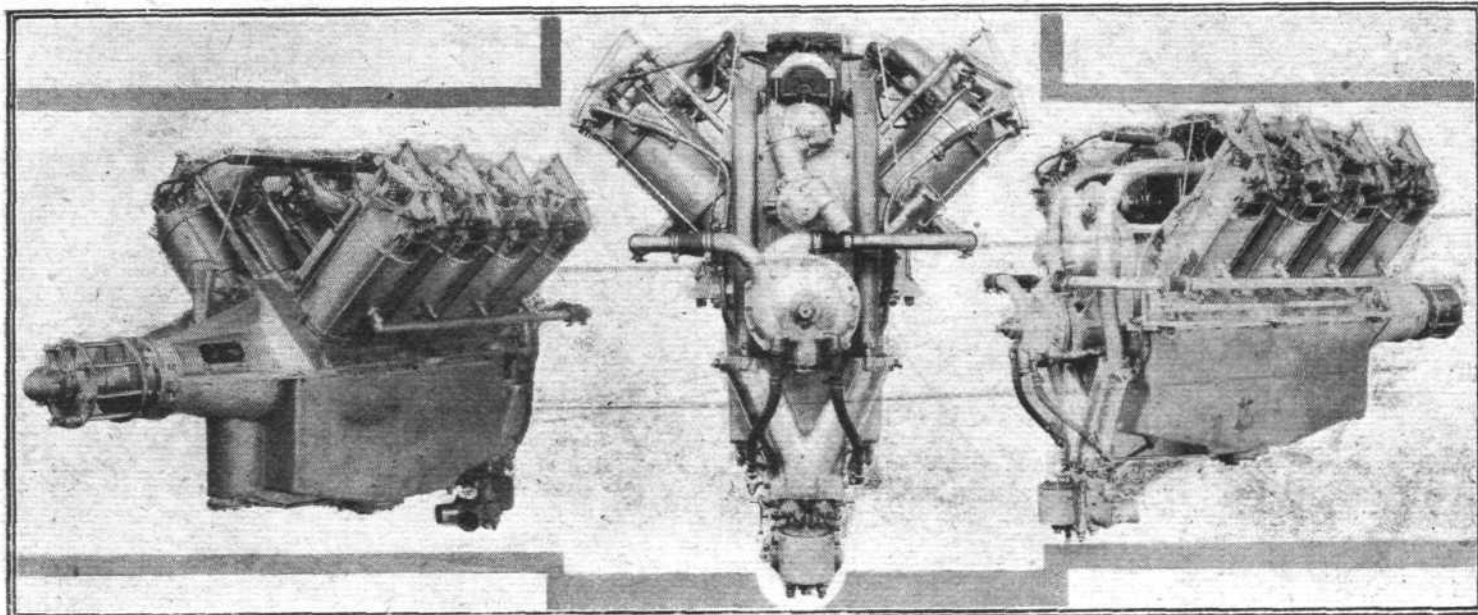
AN order of the Ministry of Munitions stipulates that till further notice no person shall purchase or take delivery of chrome ore of any grade except under a permit, and that no person shall supply chrome ore of any grade except to the holder of such a permit. All applications for permits should be addressed to the Director of Materials, Reference AM2/FWH, Ministry of Munitions, Hotel Victoria, Northumberland Avenue, W.C.2.

A NEW CURTISS AERO ENGINE.

WE show in the accompanying illustrations three views of the latest Curtiss aero engine, the OX-5. Practically speaking the OX-5 is an improved and modified model of the 90 h.p. OX-2, an 8-cylinder "V." In general design it is identical, but the following are some of the improvements that have been introduced. The upper half of the crankcase has been

even more economical by the employment of a new design of breather pipes, whilst the oil-level indicator has also been improved.

A new and lighter auxiliary air valve has been fitted, which permits of much better functioning of the engine at low speeds. The magneto bracket and the water pump



Three views of the new Curtiss 90 h.p. model OX-5 8-cyl. V aero engine.

considerably strengthened and stiffened, extra ribs having been added and a heavier metal employed in its construction. The main bearings have also been improved, and oil slingers are now fitted at each end of the crankshaft. A new type of oil strainer is employed, which allows the screen and oil reservoir to be examined without disassembling the lower half of the crankcase. The oil consumption has been rendered

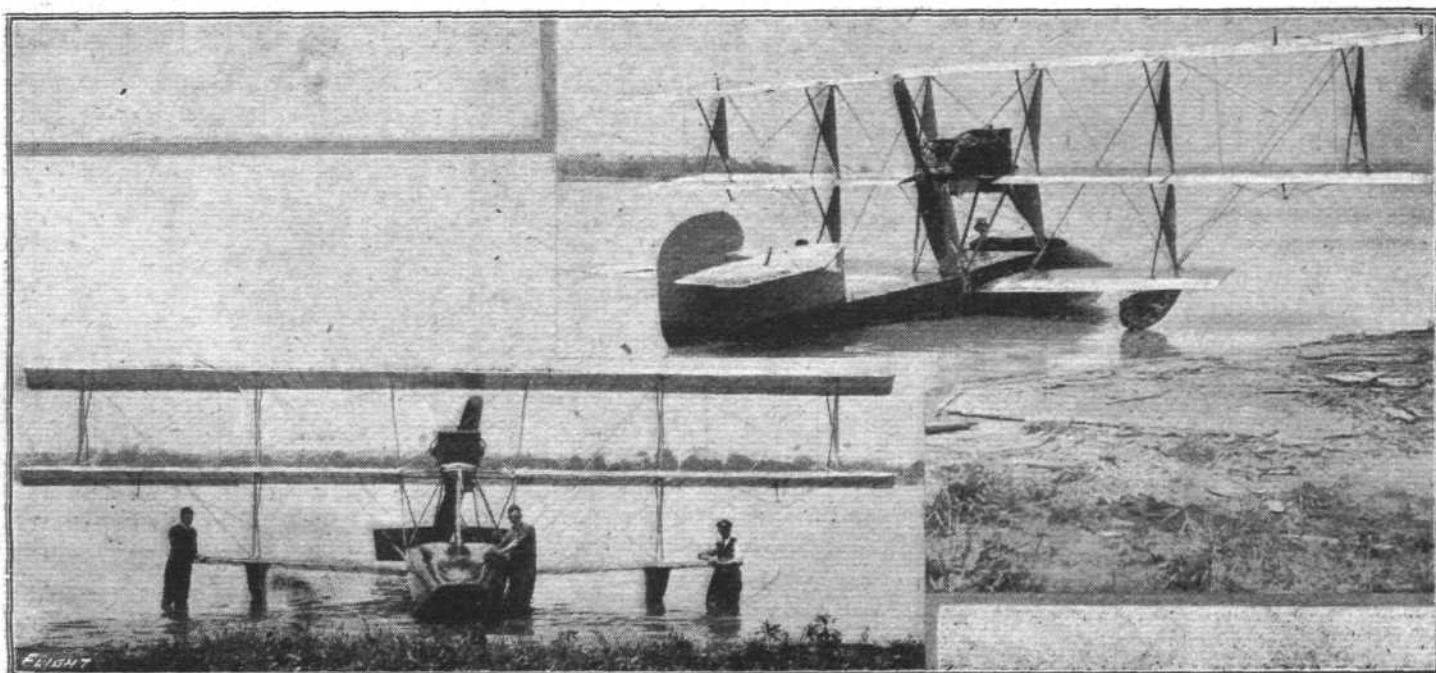
support have both been stiffened and rendered much more rigid in construction. The Berling D-81 magneto is now fitted instead of the A-81 model of the same make, it being of more substantial design. Detail improvements in the valve action have also been effected. The bore and stroke of the Curtiss OX-5 are 4 ins. and 5 ins. respectively, giving 90 h.p. at 1,400 r.p.m.



The Caproni at Work.

■ WRITING to the *Daily Telegraph* with reference to the Italian attack on Monte San Gabriele, Mr. Perceval Gibbon says: "North of San Marco the great Pannowitz Forest stretches back into the heart of the Austrian positions. It is

sown with their guns. There are points upon the front whence I have seen it steaming like a cauldron with the battery smokes. A squadron of great Caproni bomb-dropping aeroplanes sailed over it yesterday with explosives and incendiary shells and sowed it with fire. The oaks of the Pannowitz are alight."

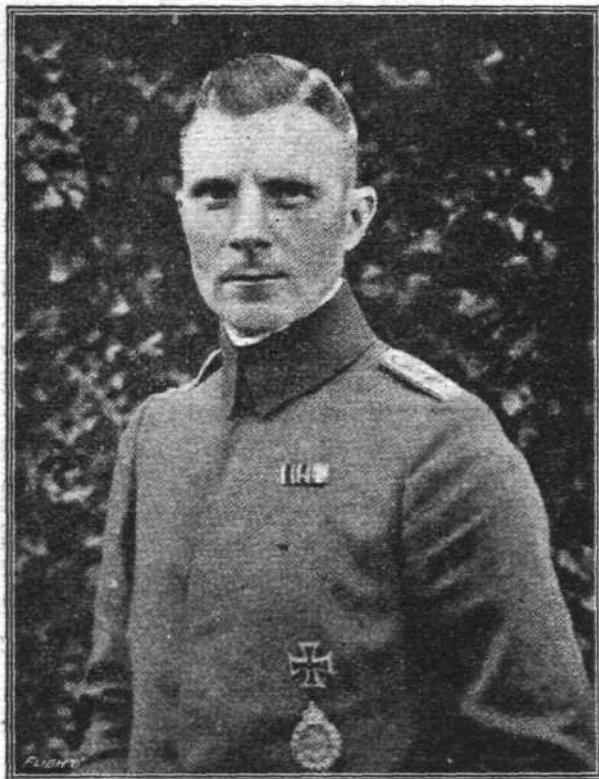


Two further views of the Curtiss model F.L. triplane flying boat, which was illustrated in a recent issue of "FLIGHT."

AIRISMS FROM THE FOUR WINDS

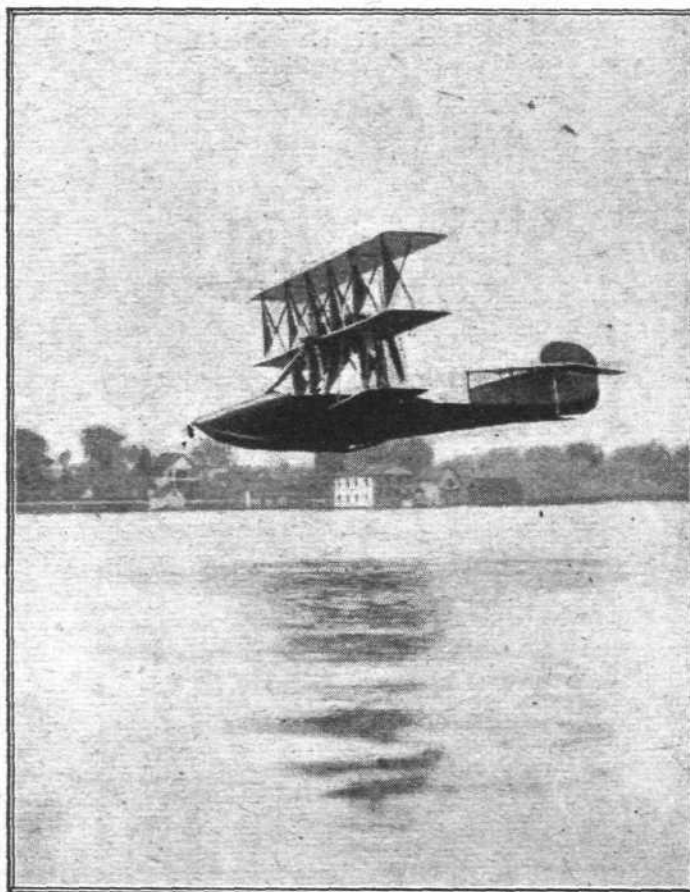
How to use the aeroplane, when combined with Austro-Hun military "Kultur," for the elimination, in a novel way, of individual units of the enemy public, emerges from a series of articles in the Vienna *Arbeiter Zeitung*, which have been published as an argument in favour of a general amnesty

uncle, enclosing a copy of the proclamation by the Tsar and General Rennenkampf, which was dropped on the Austrian lines from a Russian aeroplane. The girl was sentenced to death. Her uncle read the proclamation to a bank official, who gave three copies to friends of his. He and one of the



Captain Kleine, the Commander of the bombing squadron of aeroplanes, on the July 7th London raid.

in regard to sufferers from "justice" as administered by the Austrian military courts. The journal sets out that in September, 1914, a young lady clerk wrote a letter to her



The Curtiss triplane flying boat about to "land."



In captivity.—A Bristol biplane captured by the Germans.

officials were sentenced to death, and two friends of the official were sentenced to five and three years' penal servitude respectively. A third friend, who lent a copy to a colleague, who made two copies, was sentenced to death. Another man who was present when the copies were made received three years' penal servitude, and a man who made a copy was sentenced to death.

Copies of this proclamation came into the hands of a school-boy, who took them to school, with the result that 20 school-boys from 15 to 18 years of age, were sentenced altogether to 24 years' penal servitude. The sum total of the 39 sentence pronounced was six capital sentences and 91 years' penal servitude.

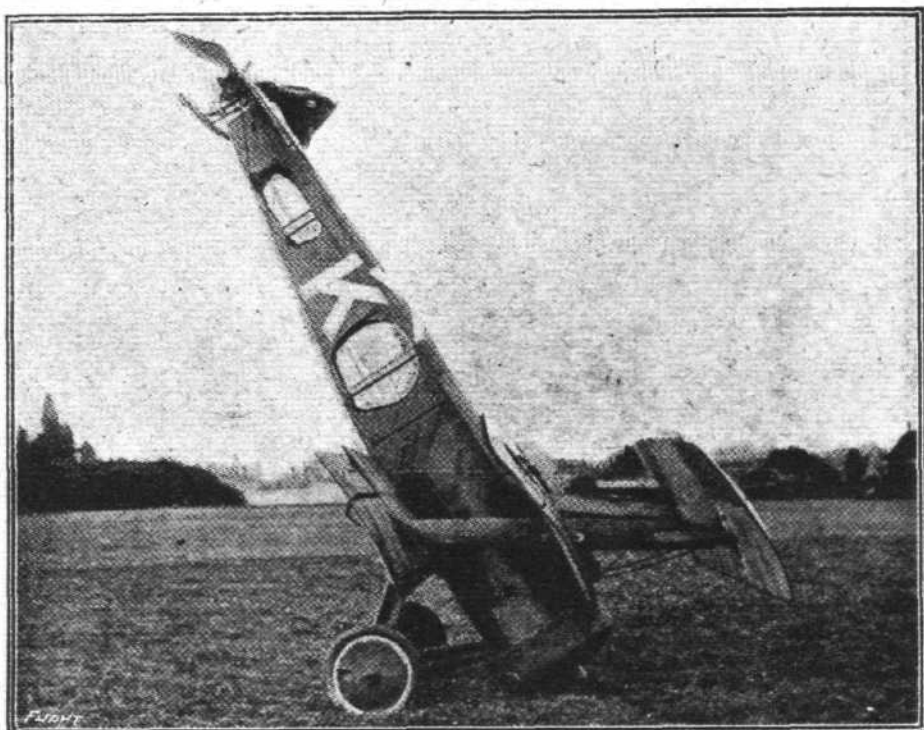
Ramsey Macdonald and his crew should be proud of their nice "German friends."

NOTHING like training the mind of the young by practical demonstration. Therefore the introduction, in connection with the public secondary schools cadet camp at Marlborough, of not only cyclist and machine-gun sections of regular troops into the operations of the cadets' "field-day," but of an aeroplane for scouting work and the dropping of messages during the "fight," is to be highly commended. Beneficial results cannot help but follow, and General Slater, who takes a keen interest in the camp, was upon his second visit more than satisfied with the efficiency and steadiness of the cadets, and said so, promising, moreover, to do all in his power to ensure the continuance of the camp. In this movement there is a highly valuable asset for the next decade of Britons.

MORE power to the elbow of the Dutch in their methods of giving physical evidence of their neutrality by potting at Hun aircraft which so unceremoniously frequently and insolently violate Dutch territory. There is plenty of evidence that this preventive action reflects the will of the true Hollander, and by way of giving emphasis to this form of retaliation the Dutch Major-General Boellaard tot Herwijnen (retired) has made in the columns of the *Amsterdam Telegraaf* an appeal to 600 Dutchmen to send each a *kwartje* (5d.) to

present a gold watch to Sergeant Lok, who shot down one of two German aeroplanes which were violating Dutch neutrality on August 18th by flying over the Province of Groningen on their way back from the English coast.

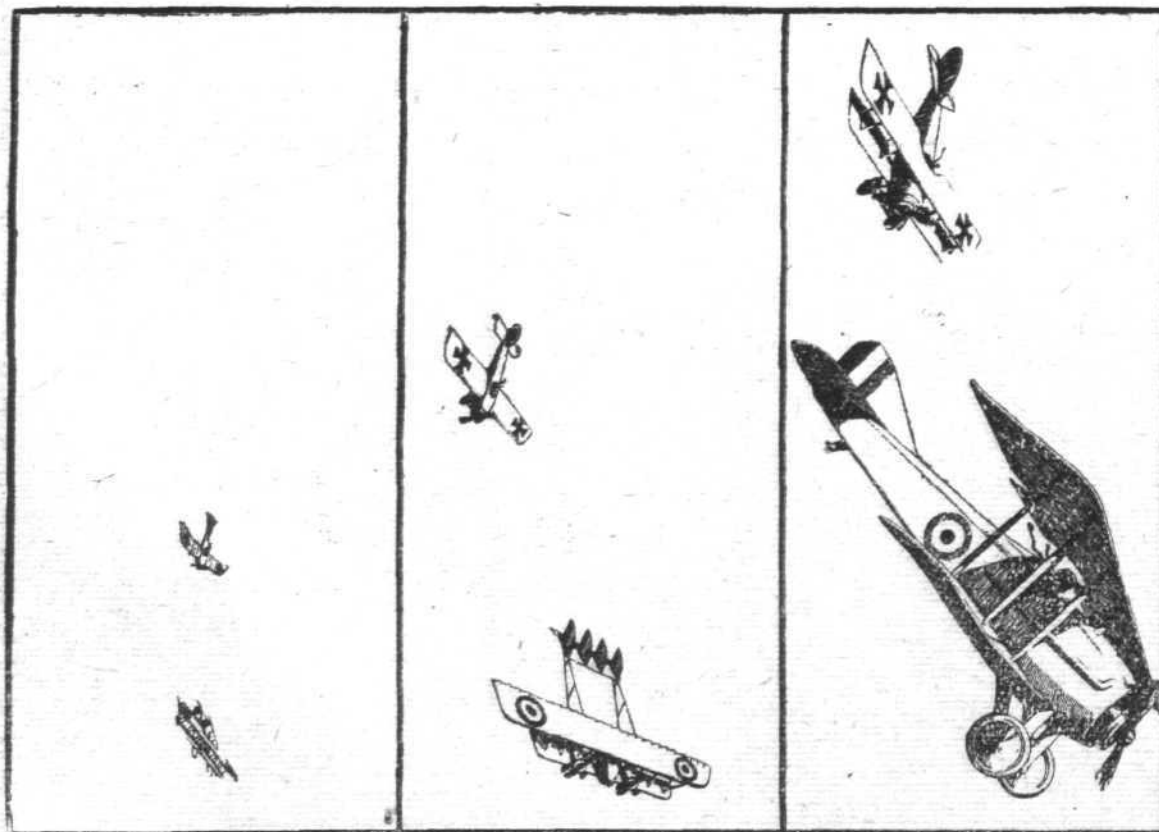
"As far as I am aware," wrote Major-General Boellaard, "Sergeant Lok is the first Dutch soldier of whom it can be said with certainty that he personally gave a clear proof of our



A British machine in the hands of the enemy, as she landed.

will, where possible, to defend our neutrality by force. And this is not without significance in these days, when violation of our neutrality is so often reported."

AEROPLANES "of the near future" are visualised by a Victoria Street civil engineer, in some respects from quite a



How the German papers depict, graphically, their "claims," for and against, in regard to the aeroplane losses, for the three years of the war. Needless to say, the Allies' version of those comparative drawings would tell a very different story.

1st war year (1914-15) :—
German .. 47
Enemy .. 72

2nd war year (1915-16) :—
German .. 173
Enemy .. 455

3rd war year (1916-17) :—
German .. 462
Enemy .. 1,771

novel standpoint. In a daily contemporary, he suggests what is a perfectly natural evolution, that probably in a short time we shall see the advent of planes whose vital parts are protected with curved plating of some light steel alloy, for deflecting machine-gun and shrapnel bullets, whilst the pilot and observer will be out of sight, navigating their machines and working their guns, &c., by means of periscopes. Protective armour would seem to lead at no very distant date to the use of heavier calibre guns. Again, gas helmets may easily come to be a recognised part of an airman's equipment, together with apparatus for discharging poisonous gases, smoke clouds, &c., whilst for night flying tractor planes may conceivably employ trailers of wire or other suitable material for entangling propellers of hostile aircraft.

WHEN "Civil Engineer" gets to the advent of peaceful times, he shows evidence of being an allotment-holder, and is clearly working for Government aid in perpetuating the universal allotment idea. He muses thus: "When the war is over, a committee composed of our surviving controllers, captains of industry, and business men, could surely easily arrange to have the surplus aeroplanes converted, if not into ploughshares and pruning-hooks, into aerial spraying and fumigating machines for the Board of Agriculture."

ORVILLE WRIGHT, in an interview with Marion Ryan, has expressed himself as anything but enthusiastic of the chances of an ocean aircraft service. "I cannot," he says, "foresee a time when crossing the Atlantic by air will be a regular occurrence. It may come, but certain conditions would have

to be overcome, certain new developments accomplished. The trip could be made in 24 hours; must be made in that time if at all."

WITH all deference to so great an authority, we are certainly more optimistic in this direction than Brother Orville.

"WHERE air raids are unknown," as the attractive headline to an auctioneer's announcement of the sale of a "gentleman's residence" at Andover, is indeed a sign of the times, and to many would be sufficient attraction to find a purchaser forthwith. But Mr. Allan Herbert, the auctioneer in question, who is evidently of an original turn of mind, in setting forth his goods, does not stop at this, but ascends almost to the poetic in his "auctioneering," when describing the limitless attractions attaching to this particular property. Who could resist a visit to this air-raided mansion, "approached by an avenue of ornamental Scotch firs, and with a lawn (room for full set croquet and tennis), and from which a most exceptional panoramic view of almost all round for about 30 miles, giving a very wide air arc for purity, yet roses have been picked out in the open on Christmas Day"? After this, the more prosaic details as to the billiard hall, second staircase, loose boxes, &c., are hardly worthy a thought, and if Mr. Herbert doesn't sell the property on Saturday next, "furnished and ready to live in, if desired," he deserves to.

TEN YEARS AGO.

Excerpts from the "Auto." ("FLIGHT's" precursor and sister journal) of August 31st, 1907. "FLIGHT was founded in 1908.

THE FARMAN AEROPLANE.

The aeroplane which we announced some time ago was being built for M. Henri Farman, by Messrs. Voisin, is now completed. It has a total aeroplane surface of 52 square metres, and measures 10 metres long by 10.2 metres across. The 50 h.p. motor drives a propeller of 2.1 metres in diameter by 1.1 metres pitch, and the total weight of the apparatus is 500 kilograms.

THE ANTOINETTE AEROPLANE.

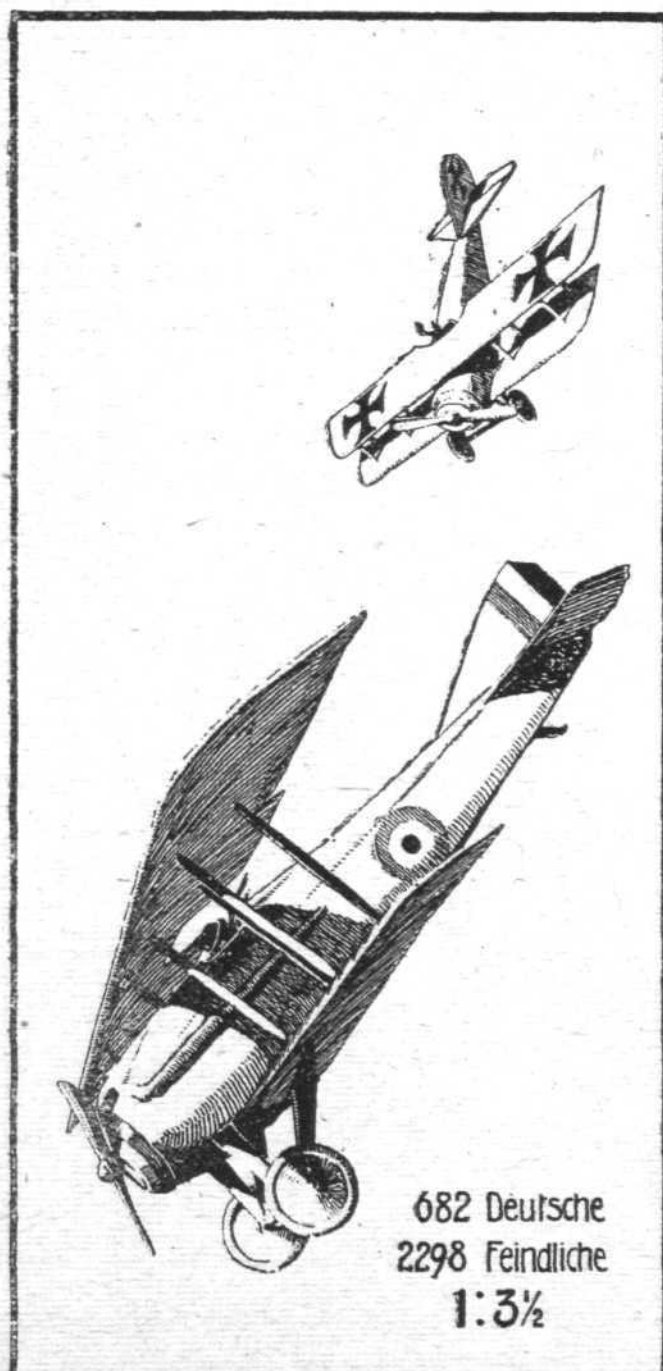
There are hardly any of the well-known names connected with automobilism on the Continent which have not now become associated in some form or another with aeronautics, and amongst the latest avowed students of the problem of the air are MM. Levavasseur and Gastambide, whose names are so closely connected with the now well-known Antoinette engine. In their researches after artificial flight, they have been joined by Captain Ferber, and their joint design for an aeroplane has been handed over to the well-known boat-builder M. Lion, for execution. The general appearance of the machine is not unlike that of the ordinary horse-fly, although the "wings" on which it floats are rigid, and the body is triangular in section. The aeroplane surfaces formed by these wings differ considerably from that provided by the ordinary accepted type of aerocurve, for each wing is formed by a large hoop framework which is covered with suitable material so as to form a concave under the surface of varying depth. The full-sized aeroplane will be driven by a 100 h.p. Antoinette engine, weighing 100 kilograms, and the total weight of the machine, including the aeronaut, who will in all probability be Capt. Ferber himself, will not, it is expected, exceed 500 kilograms. The engine will be coupled up to a propeller of 2.4 metres diameter.

THE LATEST PARSEVAL AIRSHIP.

Some particulars are now available of the leading dimensions of the latest German airship, designed by Major von Parseval, who has, as our readers will remember, so assiduously studied the problem on behalf of Germany. The gas-vessel of the airship has a capacity of 28,000 cub. ft., and is of the ordinary cigar-shaped type, having bluntly pointed ends. The length of the car is 17 ft., and it weighs 2,500 lbs. The engine which it carries is capable of developing 90 h.p.

MR. ROE'S LATEST CREATION.

The aeroplane, with which Mr. Roe intends to conduct his experiments, is now complete, and consists of two main superposed aerocurves, of which the upper one measures 36 ft. across, and the lower one 30 ft., the width being 5 ft. 4 ins.; 8 ft. in front of these main aerocurves is another aeroplane, measuring 24 ft. across by 5 ft. 4 ins. in width. The total weight of the machine—including Mr. A. V. Roe himself, as aeronaut—is 450 lbs., and the total supporting area 480 sq. ft., so that there is a little more than 1 sq. ft. of surface for every lb. which has to be supported. Propulsion will be effected by a 6 h.p. J.A.P. engine, which, on the basis of figures published by Prof. Langley, Mr. A. V. Roe anticipates should be adequate for the purpose, at any rate in a light breeze. The engine drives a propeller made of steel and magnalium having four detachable blades, which can be set at any desired angle.



Total relative losses as claimed by the Germans for the three years 1914-17.

SOME R.F.C. OFFICERS PRISONERS OF WAR.



This exceedingly interesting group of officers was taken at Freiburg, where they are in a prisoners' camp. The figure on the right (seated) is Lieut. W. B. Hills, whose home is at Woolston. Capt. Robinson, V.C., who crashed the Cuffley Zeppelin, is seen standing on the left. The other officers who have autographed the photo, are Lieut. Roche (South Africa), Lieut. F. E. Hills (London), Lieut. F. C. Craig (Australia), and Lieut. A. J. McByrne (Ireland). We are indebted to the *Southampton and District Pictorial* for this photograph, from which journal the following story attached to the photo. is also taken:—

"There is a charming and rather thrilling story connected with the interesting picture of Flying Corps officers in a German prison camp, which appears on this page. One of them is a local man (Woolston)—Lieut. W. B. Hills—who has fought on two fronts and whose war story is fuller of excitement than the average, and another, it will be observed, is Capt. Robinson, V.C., the Cuffley Zeppelin hero. Lieut. Hills was posted missing on March 9th of this year, about which time he came to earth in his plane somewhere on the wrong side of the enemy lines. Curiously enough his fall was unobserved, or perhaps he disposed of his machine in such a way as to be quite useless, and escaped before an enemy came on the scene. At all events, he was a free man in enemy lines for a week or ten days before he was discovered. While under guard after capture he was the hero of one of those demonstrations of patriotic fervour on the part of the Belgians, which worried the life out of Von Bissing and the repressive machine which he set up at Brussels. Cheered and saluted as the brave young man he was, he had the mortification of hearing later that one of those who took part in the demonstration had been imprisoned for a month, and two others for a fortnight for flouting German authority. One of these—they were all Belgian ladies—managed, however, to convey information of Lieut. Hills' identity to a Belgian officer, who was good enough to send information to the young officer's home at Woolston."

U.S. Aviators in France.

THE Special Correspondent of the Associated Press at the American Field Headquarters in France in an account of the preparations, which the United States Army in France is making, says:—

"The Army has made its plans with imagination as well as common sense. For the time being great reliance is still being placed upon the French, whose ability and willingness to help Americans seem wholly inexhaustible. One of the most valuable aids the French are giving just now is in lending to the Americans scores of hundreds of their German prisoners, the largest number of whom are rather strenuously engaged in preparing a remarkable American aviation camp, where cantonments will be erected to accommodate 15,000 student flyers, the aviation field itself being several miles square, probably the largest in the entire European war zone.

"For the present, the American Army and Navy airmen who are already in France studying in French schools are using French machines of all types, including the wasp-like fighting scouts with a speed double that of a hurricane, the heavier twin-engined bombing planes capable of carrying great weights, and the wonderfully stable and reliable reconnaissance and artillery machines, whose work is unspectacular, but very important in locating enemy batteries and directing the fire of their own guns. Scores of American airmen now studying with the French wear French uniforms, and will join the French Flying Service, from which they may later be remobilised into the American Army, as they may be needed when the Americans next spring take their place in the line as a self-reliant force. Hundreds of other American students training with the French are being instructed solely for their own service. Already the French have given them actual flying experience, but Army flyers are not gazetted

until they have flown a total of 25 hours. Naval flyers qualify after 15 hours' flying experience, after which they are sent to a seaplane base, where they complete qualifying tests.

"Three flyers have met their death so far, which is regarded as a remarkably light percentage. The French have been delighted with the aptness of their American pupils, who learn quickly and seem to have a natural aptitude for flying. The casualties in the flying services are always heavy, especially when men first go over the line into enemy country, but pilots and observers who survive the first weeks or months of actual war flying are considered worth their weight in gold, giving the corps its prestige and an example in moral."

The Exploits of d'Annunzio.

SIGNOR GABRIELE D'ANNUNZIO, who has arrived in Milan, told his friends that he had taken part in all the recent aerial bombardments, three times on Pola and a dozen times on the battle front, says the Rome correspondent of the *Daily Telegraph*. He stated that his aeroplane bombarded the enemy and used its machine gun at an altitude of less than 250 ft. At a height of 350 ft. the rudder broke, and a forced landing had to be made. During a battle D'Annunzio was slightly wounded in the wrist, and a bullet went through his boot. The poet says that the bombardments were a wonderful success. "It was like cavalry," he declares, "attacking the enemy in the rear." The machine guns simply wiped out the enemy's troops, especially the artillery. Dozens of batteries were left without men to serve the guns at the most critical moment of the battle.

Swedish Pilot Killed.

THE Swedish pilot, Lieut. Sandstroem, on Sunday, fell from his machine near Malmo, and was killed.

Personal

Casualties.

Lieutenant ROGER BOLTON HAY, M.C., West Yorkshire Regiment, attached R.F.C., previously reported missing on July 17th, is now reported to have died of wounds as a prisoner in German hands on that day. He was the youngest son of the Rev. R. W. Hay, late rector of Garsdon, Wilts, and Mrs. Hay. He was educated at Dean Close, Cheltenham, and afterwards at Blundell's, whence he was proceeding to Oxford when war broke out. With his two brothers he joined the Universities and Public Schools Brigade, and in January, 1915, all three were given commissions and gazetted to the West Yorkshire Regiment. In July, 1915, he was ordered to the front, but owing to a motor-bicycle accident, did not go out until February, 1916, from which date he served in the trenches until August, when he joined the R.F.C. and returned to England. After obtaining his pilot's certificate, he again went to the front last April. In June he was awarded the Military Cross.

Flight Sub-Lieutenant FRANK C. LEWIS, R.N., who was killed on August 21st, aged 19, was the only son of the late Frank B. Lewis, and of Mrs. Lewis, of 18, Craven Hill Gardens, W. He was educated at Northdown Hill, Cliftonville, and Marlborough College (Field House). On leaving school at Christmas, 1916, he applied for a commission in the R.N.A.S., which he entered last February, being promoted flight sub-lieutenant in July. He went to the front on August 9th, and three days later was selected for a fighting squadron. His squadron commander writes:—"He fell in action in an aerial battle and fought bravely to a noble end."

Second Lieutenant GEOFFREY SHIELD NICHOLSON, R.F.C., who was wounded on August 21st, and died in a clearing station on the following day, was the only son of Professor and Mrs. Shield Nicholson, 3, Bedford Park, Edinburgh, and grandson of the late Professor W. B. Hodgson. He was born on August 6th, 1894. As a boy he was rather delicate, and after being at Merchiston, he was educated privately for Edinburgh University. When war broke out he was in his second year reading for History Honours and the Law degree. He joined the O.T.C., and being much interested in flying, went to Beatty's school at Hendon, and obtained his pilot's certificate in November, 1915. In the February following, he obtained a commission in the Black Watch, was transferred in February, 1917, to the Royal Flying Corps, and got his wings in June. He had been flying at the front about six weeks. He was a well-trained musician, and showed fine literary tastes.

Major THOMAS WEEDING, Royal West Surrey Regiment, who was killed on August 26th, was the eldest son of Mr. and Mrs. Thomas Weeding Weeding, of Kingthorpe, Addlestone, Surrey. His brother, Second Lieutenant J. R. B. Weeding, was killed on December 22nd, 1914. Born in 1879, he was educated at Marlborough College and passed through Sandhurst, being gazetted to the 1st Battalion of the Queen's, then in India, where he spent eight years. He was a keen polo player and a very good shot. He was among the first 100 officers to learn to fly, but had to rejoin his regiment in Bermuda before the R.F.C. was formed. He came back from Africa at the beginning of the war, and went through all the heavy fighting near Ypres in October, 1914, being wounded on the 31st. He was again wounded on September 30th, 1915, so seriously that he was unable to go out again till December, 1916. On August 26th, as he was riding up to the front, a shell burst near him, and he and his horse were killed instantaneously.

Lieutenant RICHARD KEYSER, who died on August 22nd as the result of injuries received in an aeroplane accident, was the fifth son of the late Edward Keyser, for many years director of the Bank of Salonica at Smyrna, and was educated at Uppingham School. When the war broke out he left Smyrna with 20 young British residents and joined the Colours. As second lieutenant in the East Lancashire Battalion he was present at several engagements in France, and was promoted to the rank of lieutenant. Subsequently he was ordered to Salonica on special duty as an intelligence officer, but later enlisted in the R.F.C., and after a course of training in Egypt, where he won his wings, returned to England six weeks ago.

Second Lieutenant HERBERT WILLIAM HARE MARSHALL, R.F.C., killed in a flying accident in Lincolnshire on August 26th, was the only son of Colonel H. S. Marshall, 28th Punjabis, and Mrs. Marshall, of 19, Exeter Road, Weston-super-Mare. Born in 1890 at Missouri, India, he was educated at Clarence School, Weston-super-Mare. He went out to Canada at the age of 17, and had a varied experience in farming, banking, and real estate. He also spent 18 months in California. He was a member of the Imperial Bank of Canada when war broke out, and at once enlisted, together with his brother-in-law, Captain Erland G. Hadow, M.C. (killed in action on May 29th), in a Canadian contingent, and came over to England in 1915. Subsequently he obtained a commission in the West Yorkshire Regiment. He served six months in France, and then joined the Flying Corps, and gained his wings in October, 1916. He again went to the front, and there met with a smash, which caused his return to England. Lieutenant Marshall was married on May 12th to Evelyn M. Orr-Ewing, of Weston-super-Mare.

Second Lieutenant the Hon. FRANCIS W. S. McLAREN, M.P. for the Spalding Division of Lincolnshire, who met his death from internal injuries received while flying at Montrose on August 30th, a mile out at sea, was the younger son of Lord Aberconway and brother of the Hon. H. D. McLaren, M.P. for the Bosworth Division of Leicestershire. Mr. McLaren was only 31 years of age. An Eton and Balliol man, he was elected to the House of Commons as a Liberal seven years ago. The youngest member of the House at the time. For five years he acted as Parliamentary private secretary to Mr. Lewis Harcourt, then Colonial Secretary, and everything pointed to a brilliant future for the young member, who had thus early in his career won the esteem of his colleagues. After the outbreak of war he volunteered his services, and, becoming a lieutenant in the Royal Naval Volunteer Reserve, served in Gallipoli with the Royal Naval Armoured-Car Squadron. During the campaign he contracted dysentery, and on his recovery transferred to the Royal Flying Corps, but to his deep chagrin his health broke down, and he was invalided out of the service. Determined to serve, if possible, he appealed against the decision of the Medical Board, and only two months ago succeeded, and was regazetted to the Flying Corps. Mr. McLaren married, in 1911, Barbara, the daughter of Sir Herbert Jekyll and sister of Mrs. Reginald McKenna, who, with two sons, survives him. He is the fifteenth member of the House of Commons who has fallen on active service since the declaration of war.

Prisoners of War.

The parents of Flight Lieutenant BERNARD COOMBES, R.F.C., who had been officially reported missing, have been informed that, according to messages dropped by an enemy airman in France, he and his observer landed in the German lines, and were made prisoners.

Lieutenant MAURICE MOORE, York and Lancs. Regiment and R.F.C., reported missing and believed killed, is now known to be a prisoner of war at Karlsruhe. He is the youngest son of the Rev. J. Wright Moore, Rector of Kirkheaton, Huddersfield, and formerly Vicar of St. Philip's, Hull. He was educated at Hymers' College, Hull, and at the outbreak of war was entered at Caius College, Cambridge.

Mr. Charles Workman, M.D., of Woodside Terrace, Glasgow, has received information that his son Lieutenant C. S. WORKMAN, M.C., reported missing on July 17th, was wounded on that date, and is now a prisoner of war.

Married and to be Married.

A marriage has been arranged, and will take place on October 4th, at Cirencester, between Captain R. CHARLES FOWLER, Northamptonshire Regiment, attached R.F.C., eldest son of the late Dr. O. H. Fowler, of Cirencester, and ETHEL MARY, second daughter of Mr. and Mrs. GREENE, of Moore House, Whalton, Northumberland, and Oakley Cottage, Cirencester.

The engagement is announced of Lieutenant CECIL ST. GEORGE LYSER-SMYTHE, East Surrey Regiment and R.F.C., second son of Colonel Lyster-Smythe, D.L., R.F.A., and Mrs. Lyster-Smythe, of Barbavilla, Westmeath, and Eileen, daughter of Mr. and Mrs. LEAROYD, Launde Abbey, Leicester, and Williamstown Lodge, Co. Clare.

The engagement is announced of Flight Sub-Lieutenant LEONARD G. MAXTON, R.N., only son of Mr. and Mrs. James Maxton, Belfast, and RUBY, only daughter of Mr. and Mrs. DARTFORD HOLMES, of Huddersfield, and only grand-daughter of the late Henry J. Chapman, The Firs, Westgate-on-Sea, Kent.

The engagement is announced between Captain JOHN S. SHAW, R.F.C., eldest surviving son of Mr. and Mrs. J. G. Shaw, Royal Cross School, Preston, Lancashire, and GLADYS K., second daughter of Mr. and Mrs. JAMES LAWSON, Latham House, Preston.

The marriage between Second Lieutenant MALCOLM TOD, the Black Watch and R.F.C., youngest son of the late A. Maxwell Tod and Mrs. A. Maxwell Tod, of Heath Cottage, West Byfleet, Surrey, and MARGARET EVELYN MAY, only daughter of the late J. CURLING BATES, M.R.C.S., L.R.C.P., and Mrs. F. Curling Bates, of 62A, Central Hill, Upper Norwood, took place at Christ Church, Gipsy Hill, Norwood, on September 5th.

Items.

At the Investiture, held at Buckingham Palace, on August 29th, the King handed the V.C. to Squadron Commander J. Dunville, R.N., which was awarded to his son, Second Lieutenant JOHN SPENCER DUNVILLE, late 1st Royal Dragoons, for most conspicuous bravery. It will be remembered that Lieutenant Dunville, when in charge of a party consisting of scouts and Royal Engineers, engaged in the demolition of the enemy's wire, this officer displayed great gallantry and disregard of all personal danger. In order to ensure the absolute success of the work entrusted to him, Second Lieutenant Dunville placed himself between a non-commissioned officer of the Royal Engineers and the enemy's fire, and thus protected, this non-commissioned officer was enabled to

complete a work of great importance. Second Lieutenant Dunville, although severely wounded, continued to direct his men in the wire-cutting and general operations until the raid was successfully completed, thereby setting a magnificent example of courage, determination and devotion to duty to all ranks under his command. This gallant officer has since succumbed to his wounds.

Captain WEDGWOOD BENN, M.P., has for some weeks been in hospital in Rome, suffering from malaria, but is now convalescent. In addition to receiving the D.S.O., and being twice mentioned in British despatches, Captain Benn has just been cited in the French Orders of the Division de Syrie for gallantry. Since June, when he was home on short leave, he has been attached to the flying service at the front.

The will of the late Lieutenant PERCY OGDEN, R.F.C., aged 41, of Fellside, Manist, Keswick, of the British American Tobacco Company, Bristol and Liverpool, son of the late Mr. Thomas Ogden, founder of Ogdens, Ltd., who died at a military hospital on June 7th, has been sworn at £64,899.

The funeral took place at Brookwood, on September 3rd, of Flight Sub-Lieut. BASIL HELBERT, son of Colonel G. Helbert, Chief of the South African Records, London, who died suddenly at Norbury, on August 29th, aged 22. Lieut. Helbert, who took part in a memorable affair in the Channel about a year ago, when he met with an accident, was accorded the unusual distinction of being buried with full naval and military honours. Detachments from the Navy and the Naval Air Service were present under Lieut. Neill, in addition to 100 men of the South African Infantry. The band of the Naval Air Service played Chopin's Funeral March and the "Dead March," volleys were fired, and the "Last Post" sounded by Naval buglers.



Air Fighting in August.

THE British and French *communiqués* published during August show that 179 enemy aeroplanes and nine enemy balloons were brought down, and 118 enemy aeroplanes and two enemy balloons driven down, says the *Times* in its monthly summary of air fighting. The Germans during August claim to have shot down 131 Allied aeroplanes and 15 Allied balloons. Eighty-six British machines are reported by our Headquarters as missing. The French give no particulars as to losses, and the Germans announce the loss of only five aeroplanes. In August Guynémer had his fiftieth air victory, and was elected an officer of the Legion of Honour. The Germans claim that in this month their "Chasing Echelon No. 4," under Capt. Richthofen, brought down its two-hundredth adversary. Eight raids by the R.N.A.S. on points in Belgium are recorded.

British Reports.

| | |
|--|-----|
| Enemy machines brought down | 106 |
| Enemy machines driven down out of control .. | 83 |
| British machines missing | 86 |
| Enemy balloons brought down | 2 |
| Enemy balloons driven down badly damaged .. | 2 |

French Reports.

| | |
|--|----|
| Enemy machines brought down | 73 |
| Enemy machines driven down in their own lines .. | 35 |
| Enemy balloons brought down | 5 |

German Reports.

| | |
|--|-----|
| British, French or Belgian machines shot down .. | 131 |
| German loss of machines admitted | 5 |
| Allied balloons brought down | 15 |

Zeppelin Fugitives Caught.

THE two members of a Zeppelin crew who got away from Stobs internment camp in Roxburghshire on August 23rd were recaptured during the week-end.

Salvaging a Gotha.

It is understood that salvage operations have resulted in some portions of the Gotha raider which fell into the sea off Margate being recovered, together with some of the armament. Two bodies are said to have been recovered.

German Seaplane Destroyed.

In connection with the brush off the Jutland coast, which resulted in the sinking of four German mine-sweepers, the *Ringhjoebing Amtssavis* learns that German aeroplanes and submarines took part in the scrap, that people observed an aeroplane shot down, and that a vivid glare of fire from the burning vessels illumined the sea.

Aerial Mails in Mexico.

ACCORDING to a report from Monterey, Mexico, the army and navy authorities of Mexico have established an aerial mail service between the capital and Pachuca, a distance of 110 miles. Each machine carries 500 lbs. of mails.

A Record Air Week.

WRITING to the *Daily Mail* from the War Correspondents' Headquarters in France on August 28th, Mr. W. Beach Thomas says:—

"I have just read the summing up of a week's journeyman's work by our Flying Corps in France, and it so excels all that is on record in fact, or indeed in fiction, that I will omit the stirring tales of all individual adventures in favour of a mere naked epitome. The properest work of the airmen in war is the finding of the enemy's guns and directing fire on them. That is what matters most, though it is the least dramatic in telling, and it is chiefly in this department that past experience has been chiefly excelled.

"From August 14th to 21st our airmen helped the guns to range on well over 700 German batteries. They and the gunners worked so well together that 128 gunpits were totally destroyed, and among the batteries 321 separate explosions were caused.

"The figures indicate the immense scale of the artillery fighting, as well as of aerial observation. Indeed, such now is the intensity of the gunfire that what is called a counter-attack does not necessarily imply any movement of infantry at all.

"Under good observation from the enemy it may be as dangerous for the field gunners to fire as for infantry to go over the parapet. At the same time unobserved gunners can drive back the infantry without the need of help from their own infantry. Such experiences have been common in the last few weeks. In the recent fighting the gunners have had almost the same sensation of a hand-to-hand battle as the charging infantry, and have needed the same sort of courage and calmness.

"In places the Germans, though they have lost their so-called grand stands or super-observation points, as Vimy and Hill 70 and Messines and Pilkem Ridge, have still one or two ridges which force all the duty of observation on our airmen.

"As to the rest of this unparalleled week in our airmen's records let the bare figures speak for themselves. They flew in the week over 1,200 hours; they took another 5,000 photographs of the enemy's territory; they dropped over 2,000 bombs, amounting to about 36 tons in weight; they fired more than 30,000 rounds from low levels at the enemy's infantry and gunners; they brought down 68 enemy planes, and are known for a certainty to have driven down 90 more, of which a great number were certainly destroyed.

"It must be remembered that our authorities are as strict as an adverse judge in sifting the evidence of crashed machines. Many not recorded even as hit are crashed, as later evidence has often proved. The German airmen, rather like the German gunners, have been braver at night than by day. They have bombed many places from hospitals to harvest fields."



The British Air Service

"PER ARDUA AD ASTRA"



UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

Admiralty, August 28th.

Lieut. (R.N.V.R., Temp.) A. R. S. C. Kennedy granted a temp. commission as Ob. Lieut., seniority Feb. 25th, 1916.
O.S. (R.N.V.R.) H. G. Burrell entered as Prob. Ob. Officer (Temp.), seniority Aug. 25th.

Admiralty, August 29th.

Prob. Flight Officers (Temp.) W. H. Cornstock, H. Day, A. D. M. Lewis; G. Roach and W. T. Grieves all promoted to rank of Flight Sub-Lieut., seniority June 30th.

Prob. Flight Officer (Temp.) E. M. Francis entered as Prob. Ob. Officer (Temp.), seniority July 2nd (appointment as Prob. Flight Officer terminated).

The following have been entered as Prob. Flight Officers: H. A. Buckler, H. G. L. King and H. H. Sturtard, seniority July 30th; and B. Stevenson, seniority Aug. 7th.

Lieut. (R.N.V.R., Temp.) G. D. Nelson entered as Prob. Flight-Lieut. (Temp.), seniority Aug. 27th.

Engr. Sub-Lieut. (R.N.V.R., Temp.) J. H. Taylor granted a temp. commission as Lieut. (R.N.V.R.), seniority Aug. 27th (temp. commission as Engr. Sub-Lieut. terminated).

A.C. (1st) F. E. John entered as Sub-Lieut. (R.N.V.R., Temp.), seniority Aug. 28th.

J. B. Homer entered as Lieut. (R.N.V.R., Temp.), seniority Aug. 28th.

Admiralty, August 30th.

The following Prob. Flight Officers have been promoted to the rank of Flight Sub-Lieut. (Temp.), seniority as stated: W. L. Davidson; June 10th. H. C. Reeves; June 13th. F. T. Muncey, A. M. Jackson and G. W. Joyce; June 18th. G. Macfarlan; June 17th. E. A. Thain, N. J. Parkhurst and C. N. Burns; June 25th. H. H. Wall and R. S. Gregory; July 9th. J. S. Hopper and P. H. Cleave; July 25th. J. C. C. Cotes; July 31st. H. H. Howard; Aug. 3rd.

The following Prob. Ob. Officers (Temp.) have been promoted to the rank of Ob. Sub-Lieut. (Temp.), seniority as stated: L. G. Le B. Croke; April 10th. I. H. McClure; April 29th. M. C. Radford; May 12th. W. L. H. Pattison; May 14th. F. H. Hudson; June 21st. R. W. Greenwood; June 29th. C. G. Bloomer; July 5th. H. Burns, W. Hinsley, E. W. Unmack, S. T. Butteris; July 14th. C. G. Lindley, W. H. Matthews and F. B. Pelly; Aug. 3rd.

C.P.O. (2nd Gr.) R. S. Bruce entered as Prob. Flight Officer for permanent service, seniority Aug. 27th.

E. Barrett, B.Sc., F.C.S. (P.O.) and R. Ferguson, M.A. (L.M.), both granted temp. commissions as Lieuts. (R.N.V.R.), seniority Aug. 29th.

Ord. Tel. (R.N.V.R.) W. Bamber entered as Prob. Ob. Officer (Temp.), seniority Aug. 28th.

Admiralty, August 31st.

E. A. Gorton granted a temp. commission as Lieut. (R.N.V.R.), seniority August 30th.

The under-mentioned Prob. Flight Officers have been promoted to Temp. Fit. Sub-Lieuts., seniority as stated: J. Durston, R. W. Peel, M. T. McKelvey, July 1st. W. R. Bricker, M. R. Banks, G. Towers, W. F. Cleeve, E. Morris, L. Rosenbaum, J. B. White, B. R. Carter, M. S. Taylor, R. N. Ball, J. J. L. Bouey, B. W. Broatch, E. Foster, T. Richardson; Aug. 1st. A. D. Pole, K. V. Stratton; June 1st. J. H. Bentham, J. C. A. Kester; July 15th. L. R. Shobottom, A. L. Huether, B. W. Horswell; June 15th. N. P. Davies, H. J. Wiser; May 15th. M. J. Watson; Aug. 8th. W. W. Wakefield; May 3rd. R. E. McMillan, J. R. Wilford; June 3rd. W. C. Jeffries, E. M. Porter, B. Hackforth; July 3rd. L. F. Leage; June 18th. C. W. Halfhide, H. L. Webster, A. J. Binks, R. Sykes, H. L. Madge, W. Ingleson, C. E. Bramhall, D. H. Carey, K. D. MacLeod, R. C. Packe, C. W. L. Calvert, A. J. Dixon, N. S. Wright and L. E. Adlam; July 18th.

Temp. Acting Flight-Lieut. A. W. Carter, D.S.C., specially promoted to Temp. Fit. Lieut., for meritorious service in the field, seniority Aug. 28th.

H. O. Sahlstrom and G. S. Holloway granted temp. commissions as Sub-Lieut. (R.N.V.R.), seniority Aug. 30th and Aug. 28th respectively.

The following Yeo. of Sigs. promoted to Acting Warrant Officers, 2nd Gr. (Ob.), seniority Aug. 18th: G. Lansdowne, L. J. Booth, J. Bowen, A. Lees and E. Smith.

A.B. (R.N.V.R.) H. J. Dyer and Ord. Sig. R. H. Galloway entered as Temp. Prob. Flight Officers, to date Aug. 28th.

Admiralty, September 3rd.

Flight Lieut. (Temp.) R. P. Cannon, entered as Lieut. (Temp.) (R.N.V.R.), seniority September 1st.

The following have been entered as Prob. Flight Officers (Temp.), seniority August 28th: J. L. Allison, J. S. Andrews, T. B. Black, F. L. Cattle, W. C. Cutmore, B. C. Dupont, J. F. T. Fenn, M. K. Franks, L. F. A. Green, P. T. Griffith, J. C. W. Heming, J. H. Holland, A. R. Jones, T. R. A. May, A. I. Meacham, E. L. Midgley, F. Scott-Hall, H. W. Skinner, E. R. Sproule, B. J. Stedman, E. C. Stocker, G. Sturgess, B. E. Sugars, A. R. Talbot, F. J. Tipper, A. N. Webster, B. H. Sisson, and E. C. B. Wright.

Mr. G. P. Edwards, entered as Prob. Observer Officer (Temp.), seniority September 8th.

Royal Flying Corps (Military Wing).

London Gazette Supplement, August 28th.

The following appointments are made:—

Staff Officers, 1st Class (graded as an A.A.G.).—Capt. (Temp. Lieut.-Col.) D. L. Allen, R. Ir. Fus., from a Wing Comdr., and to retain his temp. rank whilst so employed; Aug. 1st.

2nd Class (graded as a Brigade Major).—Temp. 2nd Lieut. (Temp. Major) J. Rubie, D. Gds., from a Special Appointment (graded as a Park Comdr.), to relinquish his temp. rank and to be Temp. Capt. whilst so employed; Aug. 1st.

3rd Class (graded as a Staff Captain).—Temp. Lieut. J. M. Mitchell, Gen. List, from an Equipment Officer, 2nd Cl., and to be Temp. Capt. whilst so employed; Aug. 1st.

Flying Officers.—Temp. 2nd Lieut. (on prob.) L. N. Mitchell, Gen. List; May 2nd. Temp. Lieut. D. C. Burn, Oxf. and Bucks L.I., and to be transf'd. to R.F.C., Gen. List; and Lieut. K. H. Brown, R.A., and to be sec'd.; 2nd Lieut. C. A. Bridgland, E. Surr. R., and to be sec'd.; Temp. 2nd Lieut. S. T. Francis, Gen. List; July 3rd. Temp. 2nd Lieut. C. Sheehan, R. Muns. Fus., and to be transf'd. to R.F.C., Gen. List; July 4th. Lieut. R. C. Jenkins, M.C., D. of Corn. L.I., from a Flying Officer (Ob.), seniority Jan. 9th; Temp. 2nd Lieut. E. M. Jenoure, Br. W. Indies R.; July 5th. 2nd Lieut. J. Sturrock, Yeo. (T.F.), and to be sec'd.; July 27th. 2nd Lieut. (on prob.) L. M. Williams, S.R.; Aug. 7th.

Flying Officers (Observers).—Temp. Lieut. W. R. Walker, A.S.C., and to be transf'd. to R.F.C., Gen. List; April 28th, seniority Feb. 28th. 2nd Lieut. J. C. A. Davis, Rif. Brig., S.R., and to be sec'd.; July 1st, seniority Mar. 21st. 2nd Lieut. I. J. Gardiner, Norf. R. (T.F.), and to be sec'd.; May 22nd, seniority Mar. 22nd. 2nd Lieut. F. J. Gill, K.R.R.C., and to be sec'd.; July 15th, seniority April 24th. Lieut. L. W. Schneider, R.F.A. (T.F.), and to be sec'd. June 8th, seniority April 25th. Lieut. (Acting Capt.) F. G. C. Dickinson, Glouc. R., S.R., to relinquish his acting rank and to be sec'd.; June 10th, seniority April 27th. 2nd Lieut. S. F. Thompson, Suff. R. (T.F.), and to be sec'd.; Aug. 9th, seniority May 13th. Temp. Lieut. R. J. Eccles, R.A., and to be transf'd. to R.F.C., Gen. List; July 1st, seniority May 26th. Lieut. H. St. G. De Carterek, Can. Art.; Aug. 8th, seniority May 31st. Lieut. L. H. Gould, Can. Inf.; Temp. 2nd Lieut. (on prob.) C. J. Agelasto, Gen. List, and to be confirmed in his rank; Aug. 8th, seniority June 17th.

Temp. 2nd Lieut. J. R. Hodgkinson, W. York. R., seniority Mar. 23rd; Temp. 2nd Lieut. A. L. Wylie, M.C., R.A., seniority April 16th, and to be transf'd. to R.F.C., Gen. List; Lieut. (Temp. Capt.) H. A. Kelsall, M.C., A.S.C., seniority June 1st, and to be sec'd.; Temp. 2nd Lieut. (on prob.) F. A. Herron, Gen. List, seniority July 17th, and to be confirmed in his rank; Aug. 10th. 2nd Lieut. B. S. Alexander, Leic. R. (T.F.), seniority April 3rd, and to be sec'd.; 2nd Lieut. C. R. Sands, Notts and Derby R. (T.F.), seniority April 5th, and to be sec'd.; Temp. Lieut. A. A. Savell, R.A., seniority April 14th, and to be transf'd. to R.F.C., Gen. List; Temp. 2nd Lieut. A. A. D. Tophis, attd. E. Surr. R., seniority April 19th, and to be transf'd. to R.F.C., Gen. List; Lieut. R. F. Given, Can. Inf., seniority April 22nd; Temp. Lieut. F. T. S. Menendez, Glouc. R., seniority May 28th, and to be transf'd. to R.F.C., Gen. List; Aug. 11th. 2nd Lieut. J. S. Cassels, M.C., R. Suss. R., and to be sec'd.; July 15th, seniority April 16th (substituted for the notification in the Gazette of Aug. 1st).

Balloon Officer.—Temp. 2nd Lieut. R. S. Bell, Gen. List; May 30th.

Adjutant.—Temp. Lieut. G. H. L. Sweet, North'd. Fus., from an Equipment Officer, 3rd Cl., and to be Temp. Capt. (without the pay or allowances of that rank) whilst so employed; July 27th.

General List.—To be Temp. 2nd Lieuts. (on prob.): W. W. Bull; Aug. 4th. G. H. Rice, J. T. Williams, J. E. Adcock; Aug. 24th.

Memoranda.—2nd Lieut. W. U. Dykes, Sco. Rif., S.R., to be Temp. Lieut. whilst serving with R.F.C.; Aug. 1st. 2nd Lieuts. (T.F.) to be Temp. Lieuts. whilst serving with the R.F.C.: R. H. Wathes, Notts and Derby R.; E. F. Warner, A. Cyclist Corps; Aug. 1st. Temp. 2nd Lieut. F. C. Ralph, Gen. List, relinquishes his commission on account of physical unsuitability as a Pilot or Ob.; Aug. 29th.

Supplementary to Regular Corps.—2nd Lieut. D. Gow resigns his commission; Aug. 29th. 2nd Lieut. W. F. Thrutchley relinquishes his commission on account of ill-health, and is granted the hon. rank of 2nd Lieut.; Aug. 29th.

London Gazette Supplement, August 29th.

The following appointments are made:—

Flight-Commanders.—2nd Lieut. (Temp. Lieut.) A. Gray, Arg. and Suthd. Highrs. (T.F.), from a Flying Officer, and to be Temp. Capt. whilst so employed; Aug. 7th. From Flying Officers: Capt. G. S. Buck, Lond. R. (T.F.); Temp. 2nd Lieut. A. I. Riley, Gen. List, and to be Temp. Capt. whilst so employed; Aug. 10th. Lieut. S. T. Ravenscroft, Yeo. (T.F.), and to be Temp. Capt. whilst so employed; Aug. 14th.

Flying Officers.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: T. Gran; Mar. 1st. A. S. Harris; June 14th. Lieut. G. H. Heaton, Cyclist Bn. (T.F.), and to be sec'd.; June 28th. Lieut. M. F. J. R. Mahony, R. Ir. Fus., from M.G. Corps; Lieut. R. C. Hartland-Rowe, Leins. R., and to be sec'd.; 2nd Lieut. A. F. Buckley, Leins. R., S.R., and to be sec'd.; 2nd Lieut. C. B. Naylor, Yeo. (T.F.), and to be sec'd.; 2nd Lieut. G. T. Shuttleworth, Middx. R. (T.F.), and to be sec'd.; June 29th. Lieut. C. B. Waters, Lond. R. (T.F.), from a Balloon Officer; July 13th. Lieut. W. H. Rowe, Welsh R., and to be sec'd.; July 15th.

From Flying Officers (Obs.): Lieut. H. St. C. Smallwood, Ind. Army Res. of Officers, seniority Aug. 29th, 1916; Lieut. W. A. Landry, Can. Art., seniority Aug. 30th, 1916; Lieut. C. F. Wolley-Dod, Notts. and Derby. R., seniority Oct. 30th, 1916; Lieut. W. J. Pierce, L'pool. R., S.R., seniority July 31st, 1916; Temp. 2nd Lieut. S. A. Gibbons, Gen. List, seniority July 26th, 1916; Temp. 2nd Lieut. L. Neville-Smith, Gen. List, seniority Oct. 15th, 1916; Temp. Lieut. A. R. Brassington, Leins. R.; July 20th, seniority Oct. 15th, 1916. Temp. 2nd Lieut. K. R. Sayers, R. W. Kent R., and to be transf'd. to R.F.C., Gen. List; July 29th. 2nd Lieut. (Temp. Lieut.) N. Clark, R.F.A. (T.F.), from a Flying Officer (Ob.); July 30th, seniority June 14th, 1916; July 18th. Temp. 2nd Lieut. (on prob.) R. E. Dugate, Gen. List, and to be confirmed in his rank; Lieut. G. A. Cockburn, Can. Art.; July 31st. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: T. R. Jarvie, A. B. Hughes, J. J. Fitzgerald; Aug. 6th. Temp. Lieut. R. S. S. Brown, Gen. List, from a Flying Officer (Ob.), seniority Mar. 14th, 1916; Temp. 2nd Lieut. (on prob.) R. W. Trubridge, Gen. List, and to be confirmed in his rank; Temp. Hon. 2nd Lieut. E. S. C. Sen, Gen. List, and to be Temp. 2nd Lieut.; Lieut. R. J. S. White, Can. Gen. List; 2nd Lieut. (on prob.) J. M. Hancock, S.R.; Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: E. J. N. Brown, N. McC. Anderson; Aug. 7th. G. H. Ray; Temp. Lieut. J. W. Mathews, Gen. List, from a Flying Officer (Ob.), seniority July 6th, 1916. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: C. K. Mills, R. J. Dawes; and Lieut. L. J. Mooney, R.F.A., S.R.; Aug. 8th. Lieut. V. Bayley, L'pool. R., from a Flying Officer (Ob.), seniority May 14th, 1916; Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: W. K. Nunnerley, T. H. Davies, C. W. Homer, S. N. Shephard, A. G. Cooper, C. G. Evans, E. A. Whitehead; Aug. 9th. W. P. Lester-Jones, E. H. Williams, J. P. Ironside, C. W. Skeet, H. W. Oliver; Aug. 10th. 2nd Lieut. J. E. Gurdon, Suff. R., and to be sec'd.; Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: P. E. Harris, H. Hercock, M. O. Ramsay, F. J. Ortweiler; Aug. 11th. Lieut. W. C. Williams, Leic. R., and to be sec'd.; Aug. 12th. Temp. 2nd Lieut. (on prob.) J. T. Gartside, Gen. List, and to be confirmed in his rank; Lieut. G. R. Long, Can. Gen. List; Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: A. A. Veale, J. B. Allen, R. D. Bennett; Aug. 13th.

Flying Officers (Observers).—Temp. 2nd Lieut. H. C. Vickery, W. York R., and to be transf'd. to R.F.C., Gen. List; Nov. 15th, 1916, seniority Mar. 19th, 1916. Temp. 2nd Lieut. V. H. Legg, High. L.I., seniority Mar. 5th, and to be transf'd. to R.F.C., Gen. List; Temp. 2nd Lieut. J. T. Long, attd. Middx. R., seniority Mar. 8th, and to be transf'd. to R.F.C., Gen. List; Temp. Lieut. J. L. Heard, Manch. R., seniority Mar. 21st, and to be transf'd. to R.F.C., Gen. List; Capt. L. F. Cameron, Can. Inf., and Lieut. R. H. Sawlor, Can. Inf.,

seniority April 3rd; Lieut. H. Perodeau, Can. Inf., seniority April 6th; Lieut. W. Hay, Can. Inf., seniority July 4th; Aug. 11th, 2nd Lieut. D. H. King, Middx. R. (T.F.), seniority May 1st, and to be sec'd.; Temp. 2nd Lieut. W. H. Skinner, R. Fus., seniority May 6th, and to be transfd. to R.F.C., Gen. List; 2nd Lieut. T. N. Robinson, R.F.A. (T.F.), seniority May 12th, and to be sec'd.; Temp. 2nd Lieut. A. J. Tyler, R.A., seniority May 12th, and to be transfd. to R.F.C., Gen. List; Lieut. H. C. Dumbell, R.F.A. (T.F.), seniority July 16th, and to be sec'd.; Aug. 12th. Temp. 2nd Lieut. T. C. F. Paice, Wilts. R., seniority May 4th; Lieut. G. R. Hunter, Camn. Highrs., seniority May 6th, and to be sec'd.; Temp. Lieut. W. D. Rockley, R.A., seniority May 12th, and to be transfd. to R.F.C., Gen. List; Aug. 13th. 2nd Lieut. H. G. Scudamore, R. W. Kent R., S.R., seniority April 21st, and to be sec'd.; Temp. 2nd Lieut. W. A. MacMichael, R. Scots, seniority April 22nd, and to be transfd. to R.F.C., Gen. List; Temp. 2nd Lieut. E. E. Wallace, R. Fus., seniority April 22nd, and to be transfd. to R.F.C., Gen. List; 2nd Lieut. L. O. Stocken, Middx. R. (T.F.), seniority May 25th, and to be sec'd.; Temp. 2nd Lieut. M. K. McGregor, Sco. Rif., seniority May 26th; Lieut. S. M. Goodeve, Can. Art., seniority July 4th; Aug. 14th.

Balloon Officers.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: C. H. Hartley, R. T. Penn; June 17th. E. Lee; June 20th; Temp. 2nd Lieut. R. W. S. Middleton, North'd. Fus., and to be transfd. to R.F.C., Gen. List; Temp. 2nd Lieut. W. Briggs, R. Scots, and to be transfd. to R.F.C., Gen. List; Temp. 2nd Lieut. (on prob.) W. B. Ward, Gen. List, and to be confirmed in his rank; 2nd Lieut. O. P. S. W. Green, M.C., Middx. R., S.R., and to be sec'd.; July 30th. Temp. Lieut. T. C. Morgan, R.A., and to be transfd. to R.F.C., Gen. List; Aug. 13th.

Equipment Officers, 2nd Class.—From the 3rd Cl., and to be Temp. Lieuts. whilst so employed: 2nd Lieut. A. W. Turner; April 3rd. Temp. 2nd Lieut. C. F. Wormull, Gen. List; Aug. 13th.

3rd Class.—Temp. 2nd Lieut. L. T. Beddow, Gen. List; May 21st. Temp. Lieut. T. Scott, D. of Corn. L.I. (T.F.), and to be sec'd.; July 8th. Temp. 2nd Lieut. (on prob.) A. Ross, Gen. List, and to be confirmed in his rank; June 4th. Temp. Insp. of Works and Hon. Lieut. R. R. Fensom, Staff of R.E. Servs., and to be Temp. Lieut. whilst so employed; July 21st. Temp. 2nd Lieuts., Gen. List: F. R. Assinder, C. H. Chadwick, S. Curzon, A. E. W. Finch, G. Williams; July 31st. Capt. G. W. Swanson, Hamps. R. (T.F.), from a Flying Officer; Temp. 2nd Lieut. (on prob.) G. Adams, Gen. List, and to be confirmed in his rank; Aug. 1st. Temp. 2nd Lieut. (on prob.) A. W. McClellan, Gen. List, and to be confirmed in his rank; 2nd Lieut. (on prob.) G. A. Lush, S.R.; Aug. 8th. 2nd Lieut. J. A. Allen, Sea. Highrs., S.R., and to be sec'd.; Temp. 2nd Lieut. (on prob.) F. Hickman, Gen. List, and to be confirmed in his rank; Aug. 11th.

Special Appointment (graded as an Equipment Officer, 2nd Class).—Temp. Capt. R. F. Wills, Gen. List, from an Equipment Officer, 3rd Cl.; Aug. 10th.

Schools of Instruction.

Schools of Aerial Gunnery.—The following appointments are made:—**Commandant (graded as a Wing Commander).**—Capt. (Temp. Major) R. Bell-Irving, Can. Local Forces, from a Comdt. (graded as a Sqdn. Comdr.), and to be Temp. Lieut.-Col. whilst so employed; Feb. 6th.

Assistant Instructor (graded as an Equipment Officer, 2nd Class).—Temp. Lieut. the Hon. A. J. W. Keppel, Gen. List, an Equipment Officer, 3rd Cl.; Aug. 1st.

Assistant Instructors in Gunnery (graded as Equipment Officers, 2nd Class).—From Flying Officers (Ob.): Lieut. L. H. Scott, M.C., Middx. R. (T.F.); 2nd Lieut. (Temp. Lieut.) A. W. Phillips, M.C., R. Fus., S.R. (substituted for notification in *Gazette* of Aug. 10th); July 13th. **Graded as an Equipment Officer, 3rd Class.**—Temp. 2nd Lieut. B. Pool, Gen. List, from a Flying Officer; Aug. 19th.

General List.—To be Temp. 2nd Lieuts. (on prob.): H. B. Bell, W. C. Hilborn, L. L. Grant, E. G. Higginson, W. C. Gibbard, G. MacL. Campbell, C. C. Hendershot, G. W. Hall, K. D. Marshall, G. R. Norman, F. M. Ohrt, R. S. Greig, K. L. Golding, E. F. Marchand, N. S. Jones, C. C. Kilner, G. B. Craig, F. Carr, D. M. Christie, D. H. Chamberlain, W. A. Booth, J. A. Chambers, R. J. Goose, C. L. King, R. O. Babbitt, J. R. Black, A. W. Fraser, G. Irving, E. McN. Hand, J. R. Atkins, D. K. Billings, L. G. Cunningham, J. A. Baker, H. L. Blachford, D. W. Ross, H. E. Watson, J. A. M. Robertson, J. D. Smith, R. H. Williams, L. P. Watt, O. E. Sharpe, D. C. Russell, C. E. Rider, W. O. Stoddart; July 23rd. Hon. Lieut. W. W. Pritchard; Aug. 1st. H. D. Barry, S. Marks, F. G. Murray, E. W. Davis, F. V. Harrop, A. G. Edmonds; Aug. 24th.

Memoranda.—Temp. 2nd Lieuts., Gen. List, to be Temp. Lieuts. whilst serving with R.F.C.: W. H. Pierce, L. V. Marchant, R. A. Preston, F. C. Wilkinson, R. B. Beevor, F. Wright, H. Hillier, E. H. Russell, M. Dodd, H. W. Marshall, H. S. Blakeley, J. L. Bamford, S. Nixon, H. T. R. Ford, L. H. Stowell, L. Taylor, J. B. Pirie, J. B. R. Langley, E. P. Charles, H. H. McIntosh, G. Baillie, R. G. Fraser, L. Macdonald, J. H. R. Sutherland, C. A. Brown, E. T. Collins, R. E. Wakelin, A. Morrison, W. A. G. Young, H. W. Gammon, R. M. Swyer, F. Fenwick, F. G. Litchfield, H. L. Woolveridge; Aug. 1st.

Temp. 2nd Lieuts. to be Temp. Lieuts. whilst serving with R.F.C.: J. G. Walser, M.C., R.A.; J. E. Hibbert, M.C., S. Lan. R.; R. E. Bryson, attd. Sco. Rif.; R. C. Jones, R.A.; S. E. C. Lamb, Gen. List; E. W. Horncastle, R.A.; E. B. Greenhouse, R. Sc. Fus.; T. C. Luke, R.E.; R. L. S. Morris, Gen. List; Aug. 1st. The appointment of R. L. Finnis as Temp. 2nd Lieut. (on prob.), notified in *Gazette* of July 7th, is cancelled; E. A. Masterson to be Temp. 2nd Lieut., Gen. List; July 24th.

General List (R.F.C.).—Temp. 2nd Lieuts. resign their commissions with a view to joining an Officer Cadet Bn.: K. G. Farrell, G. Longden, G. A. Fenimore; Aug. 30th. Temp. 2nd Lieut. G. W. Clegg resigns his commission with a view to joining O.T.C.; Aug. 30th.

Cadets to be Temp. 2nd Lieuts.—Aug. 1st: E. H. Johnson, T. C. Kinkead, S. A. Mountain; July 29th. W. J. Bedworth, A. Holdsworth, V. R. W. Nash, W. F. Poulter, E. F. Tyler; Aug. 2nd. T. W. Williamson; Aug. 6th.

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General List.—2nd Lieuts. (T.F.) to be Temp. Lieuts.: W. J. Butler, R.E.; A. R. James, Yeo.; J. B. Smith, R. Highrs.; F. Yorke, Cheshire R.; J. A. P. Martin, Yeo.; J. W. Bousphrey, Yeo.; T. Lethbridge, Middx. R.; W. S. Reid, Yeo.; F. A. Hobro, Hereford R.; W. M. Iles, Lond. R.; C. Findlay, High. L.I.; H. R. Morgan, Yeo.; L. H. Short, Durh. L.I.; H. J. Pratt, Oxf. and Bucks. L.I.; F. T. Wakeman, R. War. R.; H. Munro, Arg. and Suthd. Highrs.; C. F. Briggs, R. W. Surr. R.; D. McC. Martin, High. L.I.; R. S. Macfarlane, Gord. Highrs.; C. B. Carr, Cyclist Bn.; F. E. Barker, Yeo.; F. Williams, R. W. Fus.; A. J. Brown, R. Suss. R.; R. Reeder, Manch. R.; Aug. 1st.

Supplementary to Regular Corps.—The promotion to the rank of Lieut. of 2nd Lieut. (Temp. Lieut.) C. G. Coe, notified in the *Gazette* of Aug. 3rd, is antedated to Nov. 11th. 2nd Lieut. (on prob.) R. H. Moore relinquishes his commission on account of physical unsuitability as a Pilot or Ob.; Aug. 31st.

General List (R.F.C.).—Temp. 2nd Lieut. H. W. Jones resigns his commission with a view to joining an O.C. Bn.; Aug. 31st.

The resignation of his commission by Temp. 2nd Lieut. T. Robinson, notified in the *Gazette* of Aug. 4th, is cancelled.

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The following appointments are made:—

Squadron Commanders.—From Flight-Comdrs., and to be Temp. Majors

whilst so employed: Lieut. (Temp. Capt.) D. M. King, Res. of Officers; Jan. 25th. Lieut. (Temp. Capt.) R. H. S. Mealing, S.R.; Feb. 1st. Lieut. (Temp. Capt.) M. I. F. Yates, M.C., S.R.; May 10th. Temp. Capt. J. T. Whitaker, M.C., Gen. List; June 21st. 2nd Lieut. (Temp. Capt.) C. S. Duffus, M.C., S.R.; June 26th. 2nd Lieut. (Temp. Capt.) R. Gregory, M.C., Conn. Rang., S.R.; July 6th. Temp. Capt. J. B. Graham, M.C., Gen. List; Aug. 1st. Lieut. (Temp. Capt.) A. L. Neale, M.C., Linc. R.; Aug. 15th. 2nd Lieut. (Temp. Capt.) W. V. Strugnell, M.C., Hamps. R.; Sept. 1st.

Flying Officer.—The date of the appointment of Temp. 2nd Lieut. S. E. Stanley, Gen. List, is Aug. 10th, and not as in the *Gazette* of Aug. 14th.

Equipment Officers, 1st Class.—From the 2nd Cl., and to be Temp. Capt. whilst so employed. Temp. Lieut. C. H. Nathan, Gen. List; Temp. Lieut. W. B. Canley, Gen. List; July 23rd.

2nd Class.—Temp. 2nd Lieut. W. J. R. Sheppard, Gen. List, from the 3rd Cl., and to be Temp. Lieut. whilst so employed: Sept. 29th, 1916. From the 3rd Cl.: Temp. Lieut. F. G. J. Didden, Gen. List; May 31st. And to be Temp. Lieuts. whilst so employed: Temp. 2nd Lieut. J. Wingate, Gen. List; Temp. 2nd Lieut. J. B. Crabb, Gen. List; 2nd Lieut. H. R. Mosenthal, S.R.; July 23rd.

General List.—2nd Lieuts. to be Temp. Lieuts.: E. F. Colman, S. Staff. R. (T.F.); W. S. King, Newfoundland Cont.; Aug. 1st. Temp. 2nd Lieuts., Gen. List, to be Temp. Lieuts.: G. P. U. Hardy, R. Whyte, R. M. Trevethan, R. Hayes, T. Brownrigg, E. A. Windridge, A. T. Miller, A. E. Turner, M.C., F. M. Miller, G. Howe, G. P. Bulmer; July 1st. E. S. B. Tavener; Aug. 1st. To be Temp. 2nd Lieuts. (on prob.): G. Glen, T. W. Esland, P. Heard, H. A. Fowkes, V. L. Fielder, J. L. Davies, B. Finnigan, J. A. Atkinson, G. J. Finley, O. Charlton, I. Bawden, C. R. Evans, H. Falkner; Aug. 24th.

Supplementary to Regular Corps.—2nd Lieut. (on prob.) D'A. L. A. Searle is dismissed the Service by sentence of a General Court-Martial; Aug. 4th.

General List (R.F.C.).—Temp. 2nd Lieut. D. G. Harrison resigns his commission with a view to joining an O.C. Bn.; Sept. 1st.

The following temp. appointments are made at the War Office:—

Staff Captains.—2nd Lieut. J. D. Smith, S.R., from an Equipment Officer, 3rd Cl., and to be Temp. Capt. whilst so employed; Aug. 7th.

The following appointments are made:—

Brigadier-General, R.F.C. Staff (graded as a Brigade Commander).—Major (Temp. Lieut.-Col.) G. Livingstone, C.M.G., Lond. R. (T.F.), from a Staff Officer, R.F.C., 1st Cl. (graded as an A.A.G.), and to be Temp. Brig.-Gen. whilst so employed; Aug. 9th.

Staff Officers, 1st Class (graded as an A.A.G.).—Bt. Major B. C. Fellows, Ret. Pay, Ind. Army, from a G.S.O., 2nd Gr., and to be Temp. Lieut.-Col. whilst so employed, vice Major (Temp. Lieut.-Col.) G. Livingstone, C.M.G., Lond. R. (T.F.); Aug. 9th.

2nd Class (graded as General Staff Officers, 2nd Grade).—Temp. Major G. P. Myers, M.G. Corps, from an Instr. in Gunnery (graded as an Equipment Officer, 1st Cl.); Major D. H. Cameron, Ret. Pay, Ind. Army, from a G.S.O., 3rd Gr.; 2nd Lieut. (Temp. Capt.) H. L. Webb, S.R., from a G.S.O., 3rd Gr.; Aug. 7th. Lieut. (Temp. Capt.) J. H. Simpson, S.R., from the 3rd Cl. (graded as a G.S.O., 3rd Gr.), and to retain his temp. rank whilst so employed, vice Bt. Major (Temp. Lieut.-Col.) B. C. Fellows, Ret. Pay, Indian Army; Aug. 9th. **Graded as a Brigade Major.**—Temp. Lieut. L. P. Ball, Gen. List, from an Equipment Officer, 2nd Cl., and to be Temp. Capt. whilst so employed; Aug. 9th.

3rd Class (graded as General Staff Officers, 3rd Grade).—Major J. M. Boyd, Sco. Rif. (T.F.); Capt. J. St. A. King, Ind. Army Inf., vice Major D. H. Cameron, Ret. Pay, Ind. Army; Lieut. (Temp. Capt.) H. A. Fordham, North'd. Fus., from a Flight-Comdr., vice 2nd Lieut. (Temp. Capt.) H. L. Webb, S.R.; Lieut. (Temp. Capt.) R. H. Peto, Gen. List, from an Adj't., R.F.C.; 2nd Lieut. W. Hodgson, W. Rid. R., to be Temp. Capt. whilst so employed, and to be sec'd.; Aug. 7th. Capt. S. C. Raffles, R. W. Fus., S.R., from an Adj't., vice Lieut. (Temp. Capt.) J. H. Simpson, S.R.; Aug. 9th. **Graded as a Staff Captain.**—2nd Lieut. A. S. Barnfield, Yeo. (T.F.), from an Equipment Officer, 3rd Cl., and to be Temp. Capt. whilst so employed; Aug. 9th.

Squadron Commander.—Major (Temp. Lieut.-Col.) W. D. Beatty, R.E., from an Asst. Dir. at War Office, and to relinquish his temp. rank; Aug. 13th, seniority Nov. 9th, 1914.

Flight-Commanders.—From Flying Officers, and to be Temp. Capt. whilst so employed: 2nd Lieut. (Temp. Lieut.) F. Rose, E. York R., S.R.; Aug. 14th. Temp. 2nd Lieut. E. H. G. Sharples, Gen. List; Aug. 16th. 2nd Lieut. (Temp. Lieut.) A. D. Pryor, Cambs. R. (T.F.); Lieut. J. M. Burd, R.A.; 2nd Lieut. M. W. Wilson, S.R.; Temp. 2nd Lieut. J. H. O. Jones, Gen. List; Temp. 2nd Lieut. C. Ryder, Gen. List; Aug. 17th. Lieut. F. J. Morse, K.R.R.C., S.R.; Aug. 18th. 2nd Lieut. D. McC. Kerr, S.R.; Temp. 2nd Lieut. J. S. Leslie, Gen. List; Aug. 19th. 2nd Lieut. (Temp. Lieut.) R. A. James, Middx. R., S.R.; and 2nd Lieut. (Temp. Lieut.) J. S. Windsor, S. Wales Bord.; 2nd Lieut. H. H. James, S.R.; Aug. 20th.

Flying Officers.—2nd Lieut. (Temp. Capt.) J. L. M. de C. Hughes-Chamberlain, Suff. R., to revert from Flight-Comdr. to relinquish his temp. rank, and to be Temp. Lieut. whilst so employed; July 28th, seniority Dec. 14th, 1915. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: G. A. Hutchinson; Aug. 9th. C. E. J. Barbour; Aug. 11th. 2nd Lieut. (on prob.) G. C. Morris, S.R.; Aug. 12th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: A. K. Cowper, A. E. Ellis; Aug. 12th. Capt. the Hon. R. G. Winn, C. Gds., from a Flying Officer (Ob.); Aug. 13th, seniority May 3rd, 1916. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: R. V. Sessions; Aug. 13th. N. S. Taylor, J. P. Edwards; Aug. 14th.

Flying Officers (Observers).—Temp. 2nd Lieut. J. McG. Glen, R. Scots; Dec. 26th, 1916, seniority Oct. 3rd, 1916. Temp. 2nd Lieut. (on prob.) G. M. Eiloart, Gen. List, and to be confirmed in his rank; July 25th, seniority Mar. 27th. 2nd Lieut. F. J. Gill, K.R.R.C., and to be sec'd.; July 15th, seniority April 24th. Temp. 2nd Lieut. H. A. Jones, attd. Wilts. R., and to be transfd. to R.F.C., Gen. List; July 18th, seniority April 30th. 2nd Lieut. D. P. FitzG. Uniacke, R. Ir. Rif., from R. Innis, Fus., seniority May 17th, and to be sec'd.; 2nd Lieut. P. N. Shone, S. Staff. R., seniority May 19th, and to be sec'd.; 2nd Lieut. R. N. Bullock, S. Staff. R. (T.F.), seniority June 2nd, and to be sec'd.; Lieut. T. G. Deason, Yeo. (T.F.), seniority June 26th, and to be sec'd.; Temp. Lieut. L. S. Brooke, A. Cyclist Corps, seniority July 5th, and to be transfd. to R.F.C., Gen. List; Aug. 15th. 2nd Lieut. G. J. Fogarty, R. Ir. Regt., S.R., seniority April 22nd, and to be sec'd.; Temp. 2nd Lieut. A. N. Burrow, Notts. and Derby R., seniority May 3rd, and to be transfd. to R.F.C., Gen. List; Aug. 16th.

Balloon Commander (graded as a Balloon Officer).—Temp. Lieut. H. Hadley, Gen. List, from a Balloon Officer; Aug. 14th.

Balloon Officer.—2nd Lieut. H. A. O'Connor, R.A., and to be sec'd.; Aug. 16th.

Equipment Officers, 2nd Class.—Capt. L. S. B. Hull, R. W. Surr. R. (T.F.), from a Staff Lieut. at the War Office; Aug. 13th.

3rd Class.—2nd Lieut. (on prob.) H. D. P. Jehring, Gen. List, and to be confirmed in his rank; June 4th. Temp. 2nd Lieut. (on prob.) C. C. Pilkington, Gen. List, and to be confirmed in his rank; Aug. 1st. Major C. G. C. Hamilton, T.F. Res.; Aug. 21st.

General List.—Lieut. K. H. Marshall, Lond. R. (T.F.), to be Temp. Capt. without pay and allowances of that rank while employed as Adj't.; Mar. 11th. Temp. 2nd Lieut. H. Camm-Lippincott resigns his commission on account of

physical unsuitability as a Pilot or Ob.; Sept. 2nd. Temp. 2nd Lieut. D. H. Bloomer relinquishes his commission on account of physical unsuitability as a Pilot or Ob.; Sept. 2nd. Temp. 2nd Lieuts. (on prob.) confirmed in their rank: F. A. Ayrton, J. L. K. Anderson, H. R. Gates. Flight-Serjt. G. G. L. Blake, from R.F.C., to be Temp. 2nd Lieut.; July 17th. To be Temp. 2nd Lieuts. (on prob.): R. C. Carver; Aug. 17th. D. A. A. Christie; Aug. 18th. Air-Craftsman C. G. Foster, from R.N.A.S., W. S. Birkett; Aug. 21st. A. Honey, A. H. Hughes, A. de Sandoval, E. J. Wilkins, C. W. Triggs, V. C. S. Milner, J. E. Liddiatt, W. H. Short, T. M. F. Tambllyn-Watts, W. J. Harries, A. H. Silver, F. H. Sandy, F. M. Roberts, J. C. Russell-Parsons; Aug. 24th.

Assistant Instructors in Gunnery (graded as Equipment Officers, 3rd Class).—Capt. A. M. Lester, Lond. R. (T.F.), from Jan. 21st to June 4th.

Supplementary to Regular Corps.—2nd Lieuts. (on prob.) confirmed in their rank: W. H. Falkner, W. A. Merrill, A. Le R. Dean; H. S. Ward to be 2nd Lieut. (on prob.); Sept. 18th, 1916.

London Gazette Supplement, September 3rd.

Attached to Headquarters Units.

Commander.—Bt.-Col. (Temp. Brig.-Gen.) E. B. Ashmore, C.M.G., M.V.O., R.A., and to be Temp. Major-Gen. whilst so employed; July 30th.

The following appointments are made:—

Squadron Commander.—Temp. Capt. E. E. Clarke, Gen. List, from a Flight Commander, and to be Temp. Major whilst so employed; August 15th.

Flight Commanders.—From Flying Officers, and to be Temp. Captains whilst so employed: Lieut. J. H. Butler, R. Ir. Rif., Spec. Res.; August 19th. Temp. 2nd Lieut. T. C. Arnot, Gen. List; August 22nd.

Flying Officers.—Temp. 2nd Lieut. (on prob.) L. Acton, Gen. List, and to be confirmed in his rank; June 26th. Temp. Lieut. L. Strudwick, R.A., and to be transfd. to R.F.C., Gen. List. Temp. 2nd Lieut. W. F. Mytton, Worc. R., and to be transfd. to R.F.C., Gen. List; July 8th. Capt. W. L. Haight, Canadian Inf.; July 9th. Temp. 2nd Lieut. W. J. Buchanan, R. Scots, and to be transfd. to R.F.C., Gen. List; Temp. 2nd Lieut. (on prob.) H. S. Whitby, Gen. List, and to be confirmed in his rank; July 10th. Lieut. A. L. Jenkins, D. of Corn. L.I., T.F., and to be sec'd.; 2nd Lieut. A. Hollis, Hamps. R., T.F., and to be sec'd.; July 11th. 2nd Lieut. (Temp. Lieut.) C. B. M. Dale, North'd Fus., T.F., from a Flying Officer (Observer), seniority September 8th, 1916; Temp. Capt. H. A. Henry, Oxf. and Bucks L.I., and to be transfd. to R.F.C. Gen. List; 2nd Lieut. G. W. S. Marshall, D. of Corn. L.I., T.F., and to be sec'd.; July 12th. Temp. Henry, Oxf. and Bucks L.I., and to be transfd. to R.F.C. Gen. List; 2nd Lieut. 2nd Lieut. (on prob.) B. J. Parkes, Gen. List, and to be confirmed in his rank, August 12th. Temp. Lieut. J. A. V. Boddy, Gen. List, from a Flying Officer (Observer), seniority November 10th, 1916; Major A. D. Carter, Canadian Inf.; Temp. Lieut. R. Nisbet, R.A., and to be transfd. to R.F.C. Gen. List; 2nd Lieut. F. M. Hawes, R.A., and to be sec'd.; 2nd Lieut. J. G. Warter, Wilts R., and to be sec'd.; August 14th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: V. G. Goodchild, B. E. Catchpole; Temp. 2nd Lieut. V. J. Woodcock, North'd Fus., and to be transfd. to R.F.C. Gen. List; Temp.

2nd Lieut. (on prob.) H. V. Highton, Gen. List, and to be confirmed in his rank; Lieut. M. Bevan, Canadian Inf.; August 15th. Temp. 2nd Lieut. (on prob.), Gen. List, and to be confirmed in their rank: J. B. Cuthbert, H. R. Marshall, R. Rowat, J. P. Wilson.

Flying Officers (Observers).—July 20th, seniority June 18th: Lieut. D. B. Aitken, Sea. Highrs., and to be sec'd.; Temp. 2nd Lieut. J. D. D. Renfrew, Sco. Rif.; 2nd Lieut. A. Urquhart, High. L.I., T.F., seniority May 10th, and to be sec'd.; Temp. Lieut. J. S. Stevenson, A.S.C., seniority May 20th, and to be transfd. to R.F.C., Gen. List; Lieut. R. F. L. Bush, R.A., seniority June 13th, and to be sec'd.; Lieut. R. S. Carter, Can. Inf., seniority June 27th; August 17th.

Adjutant.—2nd Lieut. (Temp. Lieut.) J. A. Hartcup, E. York R., to be Temp. Capt. (without the pay and allowances of that rank) whilst so employed, and to be sec'd.; August 20th.

Equipment Officers, 1st Class.—From the 2nd Class, and to be Temp. Capts. whilst so employed: Lieut. A. Sowden, W. York R., T.F.; June 1st. Temp. Lieut. S. Frost, Gen. List; August 1st.

2nd Class.—2nd Lieut. F. M. Howard, Spec. Res., from the 3rd Class, and to be Temp. Lieut. whilst so employed; August 1st. 2nd Lieut. (Temp. Lieut.) F. T. McElwee, Gen. List, from an Asst. Instr. (graded as an Equipment Officer, 2nd Class), and to retain his temp. rank whilst so employed; August 23rd.

3rd Class.—Temp. 2nd Lieut. (on prob.) P. W. Paddon, Gen. List, and to be confirmed in his rank; July 1st.

Schools of Instruction.

Assistant Instructor in Gunnery (graded as an Equipment Officer, 3rd Class).—Lieut. D. R. Smith, Canadian Inf.; July 20th. (Substituted for the notification regarding Lieut. E. R. Smith in *Gazette* of August 2nd).

General List.—To be Temp. Lieuts.: 2nd Lieut. G. G. Crutchley, Lond. R., T.F.; Temp. 2nd Lieut. H. C. Peirce; August 1st. 2nd Lieut. G. Allsop, Notts and Derby R., T.F.; 2nd Lieut. L. Wood, R.G.A., S.R.; Temp. 2nd Lieut. C. J. Poole; 2nd Lieut. P. L. Stephens, Welsh R., T.F.; Temp. 2nd Lieut. H. G. Ainsworth; Temp. 2nd Lieut. R. Cook, September 1st. To be Temp. Lieuts., whilst employed with an R.F.C. Cadet Wing: Temp. 2nd Lieut. W. A. L. Raeburn, R.W. Sur. R.; June 16th. 2nd Lieut. E. L. Brown, R. War. R., S.R.; June 25th. Temp. 2nd Lieuts. relinquish their commissions on account of physical unsuitability as Pilots or Observers: C. W. E. Bollard, H. L. Adams, C. H. R. Carmichael; September 4th. To be Temp. 2nd Lieuts. (on prob.): Co. Sergt.-Major S. G. G. Ashley, from Can. Inf.; August 12th. Pte. J. P. Crichton, from R. Fus.; August 15th. F. G. Farrell, G. A. Margetts, F. Thomasson, S. G. Hurley; August 24th. P. J. Webb; August 27th.

Aeronautical Inspection Department.

London Gazette Supplement, September 1st.

Hon. Lieuts. to be Hon. Capts. whilst employed as Insprs., Aeronautical Inspn. Dept.: C. H. Adams, W. A. Thain, K. Robertson, S. G. Young; June 1st.



AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

British.

Owing to stormy weather there was little aerial activity yesterday until the evening, when successful artillery work was carried out by us with aeroplane observation, and some fighting took place. Three German machines were brought down, and four others driven down out of control. Two of our aeroplanes are missing."

General Headquarters, August 26th.

"A bombing raid was carried out at midnight, August 25th-26th, by the R.N.A.S. on St. Denis Westrem Aerodrome, on which a large number of bombs were dropped.

"One of our machines failed to return."

Admiralty, August 27th.

"Bombing raids and observation work for artillery were carried out vigorously yesterday by our aeroplanes, and the enemy's batteries, transport, and infantry were effectively engaged with machine-gun fire.

"During the fine intervals enemy aircraft were active and aggressive. In air fighting four German aeroplanes were brought down, and three others driven down out of control. Two of our machines are missing."

General Headquarters, August 27th.

General Headquarters, August 28th.

"In spite of the rain and strong wind our aeroplanes maintained contact with our infantry throughout yesterday's operations north-east of Ypres, and successfully engaged the enemy's troops and transport with machine-gun fire. All our machines returned."

War Office, August 31st.

"Salonica.—Our aeroplanes have raided Duth, Demirhissar and Stojakovo." "Egypt.—On August 28th and 29th our aeroplanes, flying at a low altitude, carried out successful operations in the Maan district. Eight direct hits were observed on the engine sheds at Maan, while noticeable damage was caused to a field artillery battery and to other hostile troops. All our aeroplanes returned safely."

Admiralty, September 1st.

"A bombing raid by the Royal Naval Air Service was carried out last night on Ghisteltes Aerodrome. Several direct hits were made on the sheds in the S.W. corner of the aerodrome, in which vicinity a fire was started. Bombs were also seen to explode on the adjoining Ostend-Thourout railway line. Many tons of explosives were dropped. All machines returned safely."

General Headquarters, September 1st.

"Yesterday evening the weather cleared for two hours, and, for the first time for four days, normal aerial activity was resumed. In air-fighting one German machine was brought down in our lines and another was driven down out of control. One of our aeroplanes is missing."

French.

Paris, August 27th.

"On the 25th and 26th inst. three German aeroplanes and a captive balloon were brought down, and four other machines forced to land out of control in their lines. The aviation ground of Eix, the hutments of Foameix, and the bivouacs of Gremilly and Wavrille, were copiously bombarded by our squadrons."

Paris, August 31st.

"Salonica.—An enemy aeroplane was forced to descend near Lake Doiran."

Paris, September 1st.

"Our aircraft took part in the attack (on the Aisne front), keeping at a height varying from 100 to 600 metres (300 to 1,800 ft.), and bombarding the enemy with machine guns in their trenches and at his batteries. All our machines returned."

Russian.

Petrograd, August 26th.

"The enemy's airmen are also showing increasing activity in the same region." "Direction of Vladimir-Volynski. Our airmen dropped bombs on several points in the enemy's lines."

Petrograd, August 27th.

"On the Danube, on the evening of August 25th, our machine-gun fire brought down an enemy plane, which caught fire in the air, and fell in enemy territory."

Petrograd, August 31st.

"About 40 enemy bomb-carriers and battleplanes carried out a series of raids on various islands in the Gulf of Riga, and in the entrance to the Gulf of Finland, dropping about 90 bombs on the ships of the Fleet and on harbour works. Our naval airmen had a series of aerial engagements with the enemy, in the course of which we suffered no loss or damage. The appearance of enemy ships, torpedo-boats, and submarines in the vicinity of our coasts and the operations of enemy trawlers at the entrance to the Gulf of Riga have been observed."

Petrograd, September 1st.

"On August 29th, Captain Kozakoff brought down his sixteenth enemy aeroplane, which fell in the region of Proskuroff. The German airmen were killed."

Italian.

Rome, August 26th.

"Aerial activity was very lively yesterday. Our Caproni, after having several times bombed the Chiapovano Valley, crowded with enemy troops, flew low and engaged the infantry. Of the 233 aeroplanes which took part in the battle one only did not return."

Rome, August 27th.

"Our aeroplanes, by effective and repeated bombardments, sowed destruction in the interior of the enemy lines, increasing the disorder which reigned there on account of the hurried retreat."

Rome, August 28th.

"Unfavourable atmospheric conditions have greatly impeded the activity of our aeroplanes."

Rome, August 29th.

"Altogether 246 aeroplanes participated in the battle. A squadron of 40 Caproni machines, which took part in the action to the east of Gorizia, dropped over 7,000 kilogrammes (7 tons) of projectiles on enemy batteries in the Panovizza Wood."

Rome, August 30th.

"Our aircraft successfully renewed the bombardment of the enemy batteries in the Panovizza Wood."

Rome, September 1st.

"One of our flights bombarded the railway establishments at Grahovo (Tolmino) with 3½ tons of bombs."

German.

Berlin, August 27th.

"Baron von Richthofen has shot down his fifty-ninth opponent."

Berlin, August 28th.

"With the use of numerous 'Tanks' and aeroplanes flying at a low altitude, the English infantry soon after advanced to the attack on this front (between Langemarck and the Roulers-Ypres railway)."

Vienna, August 29th.

"Trieste has again been bombed by enemy airmen, but no damage worth mentioning was done."

Vienna, August 30th.

"For the third time during the past 48 hours, Trieste has been bombed by enemy airmen. Several civilians fell victims to their bombs, and several private buildings have been damaged."

Sofia, August 29th.

"During the day there was lively air activity on both sides."

Turkish.

Constantinople, August 25th.

"In the course of the operations near Bir-es-Serba our aircraft carried out successful attacks, dropping 450 kilogrammes of bombs on the enemy."

SPERRY CHARTS FOR AVIATORS.

AMONG the several practical aids to the aeroplane pilot which are being developed by the Sperry Gyroscope Company, Ltd., of 15, Victoria Street, London, S.W., not the least important is their system of charts or maps for aviators. In connection with their extensive practical work in perfecting the Sperry compass, the absence of suitable maps for use on aeroplanes has been brought very actively to the notice of the Company, while they have also had many requests for information concerning compass errors and the exact course to be steered between given cities, &c. Having decided to tackle the business of providing suitable maps, the fine flight of Mr. Lawrence Sperry from Amityville, L.I., to Boston, in the summer of last year, as well as many other cross-country and over-sea trips, provided the company with valuable practical experience which they have not been slow to take advantage of.

The distinctive feature of the Sperry charts is that, regardless of the number of turns necessary in a flight over any particular route, the complete chart is presented in a straight strip only 10 ins. wide. U.S. Geological Survey Charts, on a scale of from $2\frac{1}{2}$ to 8 miles to the inch, are used for making the Sperry maps, and the method of mounting them is illustrated in Fig. 1, showing, in outline, the map from Chicago to New York, while below it the various sections are seen cut and rearranged to form a straight strip. This strip is then mounted on rollers and placed in a framework, which is fitted at a convenient position in the aeroplane. Clearness and the absence of unnecessary details, are two of the most conspicuous features of the Sperry charts, as can be seen by the reduced facsimile of the section from New York to Elmira, reproduced in Fig. 2.

So far, the Company have only produced charts in black and white, with the exception of one for Long Island, which is coloured to bring out the landmarks in their relative importance from the pilots' point of view.

In an article in the *Geographical Review* (U.S.A.), dealing with the Sperry maps, the following useful suggestions are made as to information, &c., which should be incorporated in aeronautical charts. It says: "The marking of a city

In addition to these elements, all charts should carry a number of compass roses to indicate the meridian and the magnetic declination at various places along the course. A good way to help indicate the course would be to place compass roses at the beginning of each new course and every 6 or 7 ins. thereafter, the centre of these roses to be on the course line and the north pointing to the magnetic north.

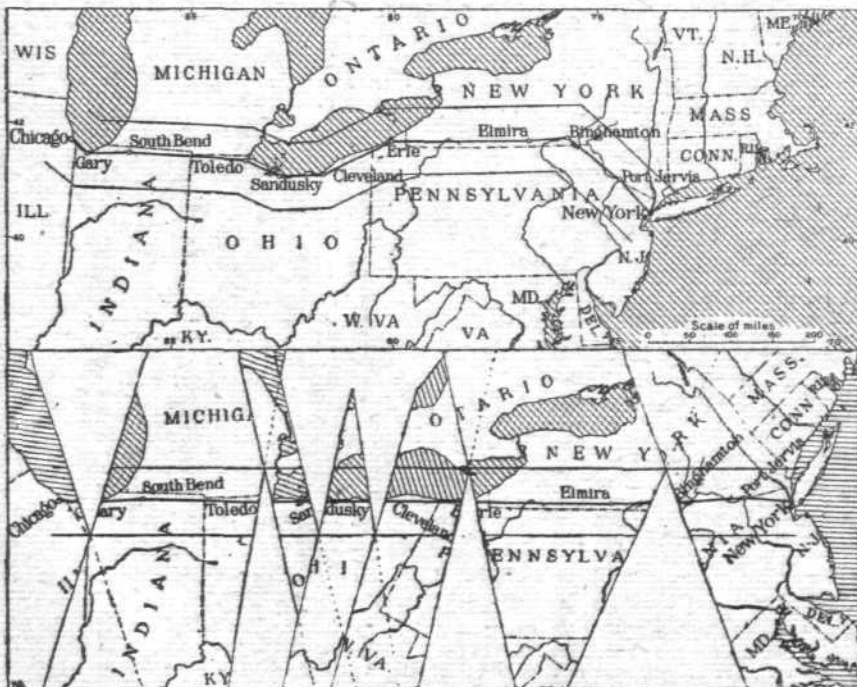


Fig. 1.—Preparing the chart. The upper section shows the route marked on the map with the bounding lines indicated. Below, the map is shown cut and rearranged to make the route practically a straight line.

or town should show some of its special characteristics, in order to aid the pilot in distinguishing it from other near-by towns of similar size. Probably the day is not far away when every city, town, and hamlet will have its name displayed in such a way that it will be legible from a great altitude. Towns having facilities for making repairs to the plane should be so designated. Roads and railroads are clearly seen from above and are much used as landmarks. Rivers are also important landmarks and should be clearly designated.

Landing places should be divided into two groups, possible and good landing places. The advantage of this division is that it gives the airman some choice in his landing place if the need of landing is not immediate. The position of telephone and telegraph wires and other dangerous obstructions should be indicated on all marked landing places.



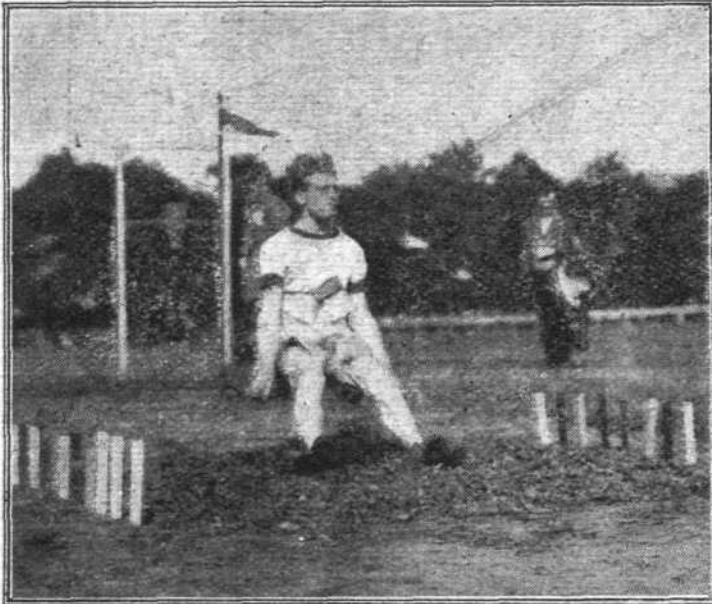
Fig. 2.—Section of a Sperry aviation map showing the route from New York to Elmira.

The pilot would then have continually before him a graphic representation of the relation of his compass lubber-line to the card. In such a case the course to be steered would be indicated on the rose at the point where the course line passes through it and on the side toward which one may be travelling from the centre—this on the assumption that the compass deviation error is negligible."

THE R.A.F. SPORTS.

WITH the laudable object of adding to the coffers of the R.A.F. Benevolent Fund, the staff of the Royal Aircraft Factory carried out a sports meeting at Farnborough on Saturday last, which, although it was the first of what it is hoped will be an annual series, was entirely successful. So many were the entries for the various events that preliminary heats had to be arranged, and these having been held before

and everywhere, infecting one and all with that wonderful keenness which pervades everything that he takes in hand. Not only did he act as judge, but he also disclosed the fact



THE R.A.F. SPORTS.—A good try by Mr. W. R. Stocks, second prizeman, for the long jump.

the meeting left only the finals to be decided. Even this meant, however, that although the sports started at 2 o'clock, the last event—the wounded soldiers' race—could not be taken till after 7 o'clock.

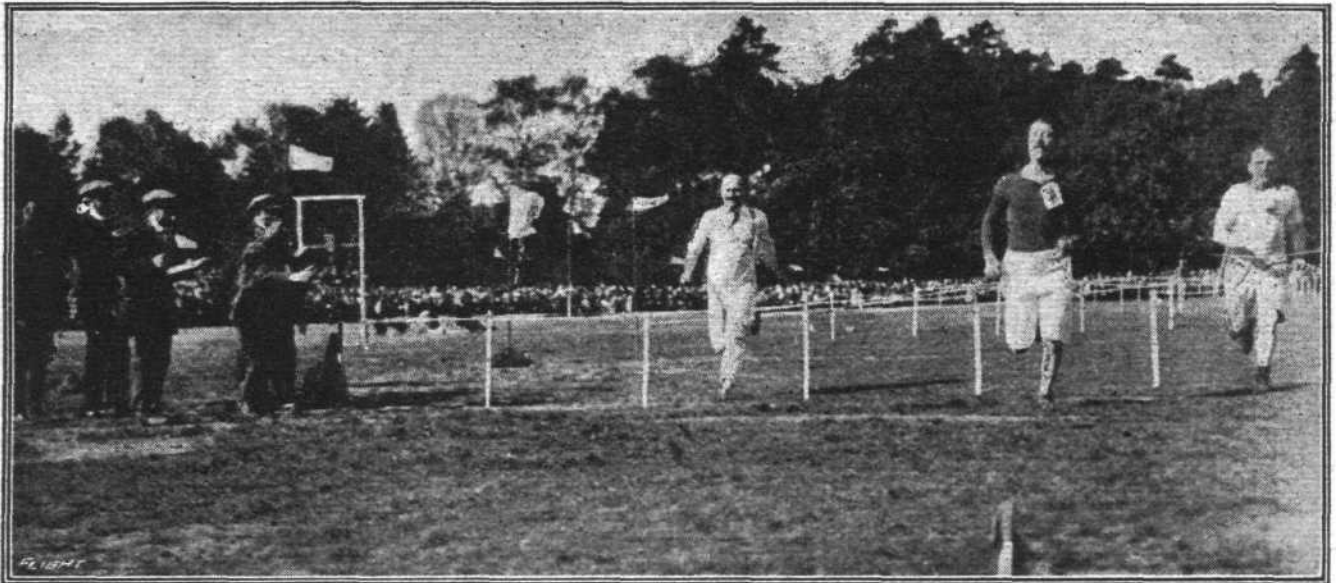
There was a big crowd present, and the competitors did not lack encouragement. Among the many officers present were General Hunter and General Ellerson, while Lieut.-Col. Henry Fowler, C.B.E., the Superintendent, was here, there,



THE R.A.F. SPORTS.—Mr. W. Warne winning the high jump.



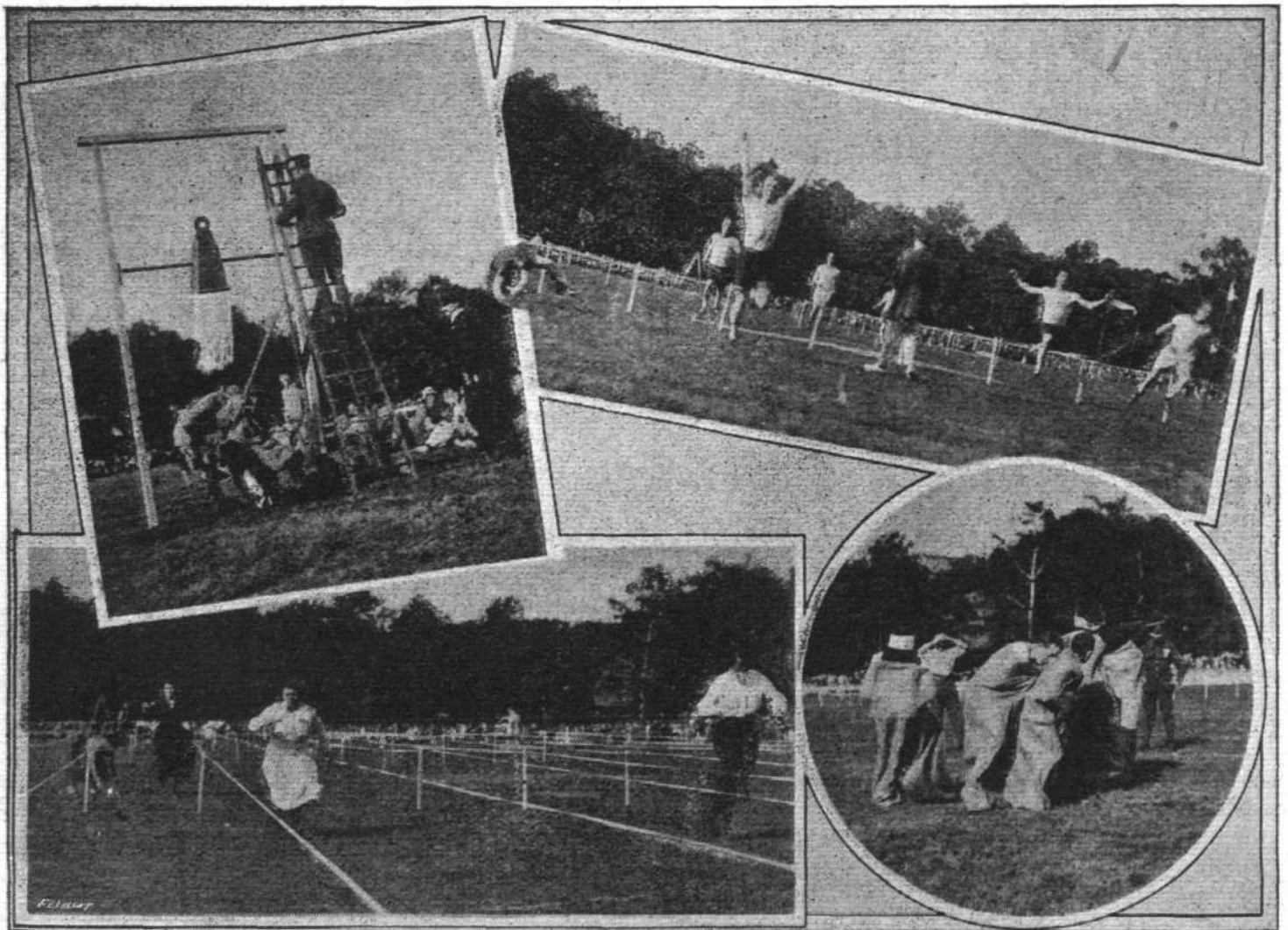
THE R.A.F. SPORTS.—A popular item in the programme. Tug-of-War teams, male and otherwise. Above: Officers' team in Event 17, R.A.F. Officers v. R.A.F. Foremen. Below: W. Department team, Event 27, R.A.F. Ladies' Tug-of-War.



THE R.A.F. SPORTS.—The Superintendent of the R.A.F., Lieut.-Col. Henry Fowler, C.B.E. (finishing on the left of picture), makes a fine bid for place in one of the heats of the Veterans up to 50 race.

that qualified as he was for the veterans' handicap (age 40-50), he is no mean sprinter, and finished a very good fourth in the final. Some fine jumping was seen, Mr. W. Warne, who won the high jump with 4 ft. 11 ins., giving some exhibitions, in one of which he cleared the bar at 5 ft. 3 ins.; he also finished first in the long jump with 17 ft. 1 in., a performance which was loudly applauded. He was also a popular winner in the

sack tournament. An event which was hotly contested was the R.A.F. championship, over a 100 yards course, and in this W. West upheld the honour of the Drawing Office, he also secured the works 100 yards and 220 yards handicaps. The ladies had quite a number of events to themselves, and, as will be seen from the photographs taken by Mr. F. Baker, the official photographer to the R.A.F., they were no half-hearted



THE R.A.F. SPORTS.—Top: Tilting the bucket, and Mr. E. West (B. Department, Drawing Office), with hands up, winning Event No. 9, the 100 Yards Championship. Below: R.A.F. Ladies' Egg-and-Spoon Race, won by Miss L. Brown, and a Sack Tournament Scrimmage.

affairs. The tug-of-war was keenly contested, but eventually the fair but sturdy representatives of the foundry prevailed.

The sports were splendidly organised, which may largely be attributed to the Hon. Sec., Mr. W. Pickett, and his band of keen and enthusiastic helpers. It is impossible to mention all the officials, but a word of praise must be accorded to the chief judge, Sergt.-Major Dent, A.G.S., and the timekeepers, Mr. Dewar and Staff-Sergt. Smith, A.G.S., while Mr. H. Greenly, who undertook the duties of Press Steward—a very important function—carried out his onerous task to perfection.

The prizes were distributed at the conclusion of the sports by Mrs. H. Fowler. The chief results were:—

- 75 yards girls' handicap.—1, Miss M. Rizzi; 2, Miss F. Baggs.
- 100 yards handicap (boys under 18).—1, R. T. E. Wood (scratch); 2, C. E. Butler (scratch).
- 100 yards open handicap.—1, F. Brady (7 $\frac{3}{4}$), 10 $\frac{3}{4}$ secs; 2, Lance-Corpl. J. E. Matthews (9 yards).
- $\frac{1}{2}$ mile handicap.—1, W. Harrowell (30 yards), 2 mins. 23 $\frac{3}{4}$ secs.; 2, G. Denyer (25 yards).
- 75 yards ladies' handicap.—1, Miss Armstrong, 11 $\frac{1}{2}$ secs.; 2, Miss K. A. Thomas.
- 220 yards open handicap.—1, F. Brady (16 yards); 2, R. J. Stock (15 yards).
- Long jump.—1, W. Warne, 17 ft.; 2, R. J. Stock, 15 ft. 5 ins.
- Putting the shot.—1, R. Wanless; 2, D. Thompson.
- 100 yards R.A.F. championship.—1, E. West; 2, H. Baker.
- $\frac{1}{2}$ mile open handicap.—1, J. T. Smith, R.F.C. (30 yards); 2, P. E. Hulford, R.F.C. (47 yards).
- Ladies' tug-of-war.—1, Q. (Foundry) Dept.; 2, M 2 Dept.

R.A.F. Veterans' (40 to 50) handicap.—1, G. Reading (5 yards), 13 $\frac{1}{2}$; 2, J. Willis (7 yards).

High jump.—1, W. Warne, 4 ft. 11 ins.; 2, R. J. Stock.

Tug-of-war.—R.A.F. officers beat R.A.F. foremen. The winning team consisted of Capt. Scott, Bishop, Rennick Lieuts. Collis, Cullemore, Lutyens, Wilkinson and Newton.

100 yards veterans over 50.—1, W. Edwell (18 yards), 14 $\frac{3}{4}$ sec.; 2, T. Kyte (4 yards).

100 yards handicap.—1, E. West (3 $\frac{1}{2}$ yards); 2, W. Pendlebury (3 $\frac{1}{2}$ yards).

Sack tournament.—1, W. Warne; 2, P. R. Gurr.

7 mile Marathon.—1, H. E. Reeves, 34 mins. 46 $\frac{1}{2}$ secs.; 2, F. Pugh.

Egg-and-spoon race.—1, Miss L. Brown; 2, Miss N. Gould.

1 mile relay race.—1, R.F.C. Depot; 2, R.F.C. H.Q.A.W.

Tilting the bucket.—1, A. Fowler and H. Stirzaker; 2, D. Payne and W. Leak.

$\frac{1}{2}$ miles open handicap.—1, J. T. Smith (75 yards); 2, T. Nurse (Dennis A.C.), 130 yards.

220 yards handicap.—1, E. West (8 yards), 23 $\frac{1}{2}$ secs.; 2, D. Thompson (10 yards).

220 yards obstacle race.—1, G. Elridge; 2, A. B. Stower.

Skipping race.—1, Miss F. Baggs; 2, Miss E. Jessop.

1 mile handicap.—1, J. Dawson (90 yards); 2, J. Johnstone.

Boat race.—Drawing Office beat Millwrights.

220 yards dribbling race.—1, A. Llewellyn; 2, W. J. Tribe.

Throwing cricket ball.—1, P. R. Gurr; 2, T. H. Broadhurst.

80 yards sack race.—1, T. D. Scanlan; 2, C. Woods.

Wounded soliders' race.—1, Pte. Dubois; 2, Pte. Church.

MODELS.

An R.O.G. Contest in Sheffield.

FOR a long time now aeromodellists have had little opportunities of trying their models in competitions, but workers in the Sheffield district are to have a contest for R.O.G. models, probably on the last Saturday of this month. Mr. C. F. W. Cudworth, who has put in such good work as Hon. Secretary of the Sheffield Aero Club, has offered a Silver Medal, to be supplemented by a bronze medal if sufficient entries materialise, for a competition under the following conditions:—

1. The competition to be for rising-off-ground models under their own power.
 2. To be an open event, without an entrance fee.
 3. The models to be made throughout by the competitors, except the propellers and wheels.
 4. The machines can be any weight or size, any type, monoplanes or biplanes, tractors or screws.
 5. The machine flying the longest duration in the air will be adjudged the winner.
 6. The minimum duration to be 45 seconds.
 7. The machines will be timed from time of leaving ground, to time of landing, or till they disappear from the Judges' view.
 8. Competitors must launch machines in the same direction.
 9. The machines to rise from the best available space on the ground, which may be prepared by rolling or cutting.
 10. Each competitor to be entitled to three trials (time permitting).
 11. All entries to be received one week before day of competition.
 12. Each competitor must be ready within one minute from the time his number or name is called; if not ready, will be disqualified from that round.
 13. Competitors will not be allowed to replace any part or parts without the permission of the Judges.
 14. Competitors must be at the Judges' flag at the fixed time stated, any competitor not present will be disqualified.
- For further particulars, competitors should communicate with Mr. C. F. W. Cudworth, 41, Coniston Road, Abbeydale, Sheffield, or Mr. H. Slack, 70, Hawksley Avenue, Hillsborough, Sheffield.

A Beginner's R.O.G. Model.

A good start is half the battle, in model-making as in everything else. How many have taken up the pastime of model aeroplane making only to drop it in disappointment after their first few efforts to turn out a model which will come up to expectations in workmanship or performance.

Model aeroplanes essentially have to be built very light, and the greatest care has to be exercised that the construction is accurately balanced; otherwise failure is a certain result. It needs a good deal of patience and perseverance to obtain that practice and experience which will enable the aeromodelist to emerge from his period of probation with success. Enthusiasm alone will seldom be sufficient to carry the beginner past all the trials and difficulties which seem to beset him in every direction. Let his workshop be replete with

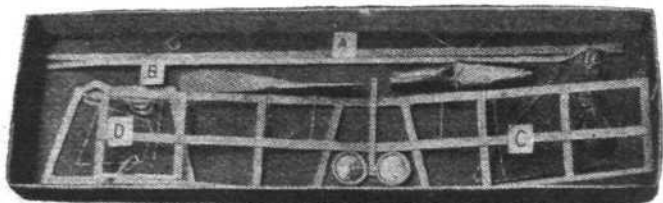
tools and all the materials necessary be to his hand, yet he will be at a loss continually to know the best methods of working even although he may have studied all that has ever been written on the subject.

If, however, he can start working on a model which has



The A. E. Jones R.O.G. model complete.

had the most difficult and trying operations brought to such a state that it only remains to finish them off, he will have the satisfaction of doing some work on his model while obtaining a very valuable insight into the best methods of construction, which will stand him in very good stead when he comes to



The parts and material for building the A. E. Jones R.O.G. model as supplied. A and B are the two parts of the main frame, C is the wire for the chassis, and D the wire frame for the rear fin. The framework for the main plane and the tail is ready for covering.

tackle the job of making a model *ab initio*. When a potential model maker starts off to turn out his first model, he is full of anxiety to see it perform, and if he has many disappointments and failures in the building process—they are usually mainly due to his unfamiliarity with the materials employed—his enthusiasm will be exhausted long before he has the model ready for testing.

There is therefore much that is commendable in the latest enterprise of Messrs. A. E. Jones, Ltd., of 97, New Oxford Street, W.C. 1. Having produced a very practical and serviceable R.O.G. monoplane, they are putting it on the market in two forms. In one everything is finished and complete, and the model only requires fitting together—a comparatively simple matter for anyone to carry out. In its second form, however—and this is the form which should appeal to most—all the material is supplied for constructing the model, but there is a good deal of simple work to be done in putting the various parts together and finishing them. From our photograph showing the set in its box, it will be seen that the framework of the main plane and also that of the tail plane and the fin is made, but the covering is to be done. The wood for the framework of the model is cut to size, but it has to be fitted together and varnished; the propeller requires polishing and the chassis has to be completed. There are also various tin clips to be made.

All this is interesting work, and withal it is not so difficult as to be beyond the powers of any handy person. It is almost impossible to make any mistake, and when the model is complete the owner will justifiably feel that he has put an appreciable amount of labour into its construction. Beyond that, he will have the satisfaction of knowing that the model will fly, and fly well.

From the photograph of the complete machine it will be seen that the model—which has a span of 22 inches—is a very business-like proposition. When correctly adjusted it rises quickly from the ground and makes a steady flight of

about 150 yards, which will doubtless be quite sufficient not only to sustain the enthusiasm of the beginner, but to spur him on to further efforts. At the end of its flight, the model lands evenly and lightly, but, of course, care should be taken that the model is only tried on level and smooth ground, and it is unnecessary to add that the model should not be tried with a cross wind. Although it is very light the model is very strong, and from personal experience with one we can say that it will stand quite a deal of rough usage, without sustaining damage sufficient to impair its flying qualities. Should, however, the chassis or skid be broken or so damaged as to render the model incapable of rising from the ground, it will still be quite possible to use it as a hand-launched model, and tests have shown that it makes very satisfactory flights in this condition; with a little painstaking work in adjusting the planes it is also capable of making loops.

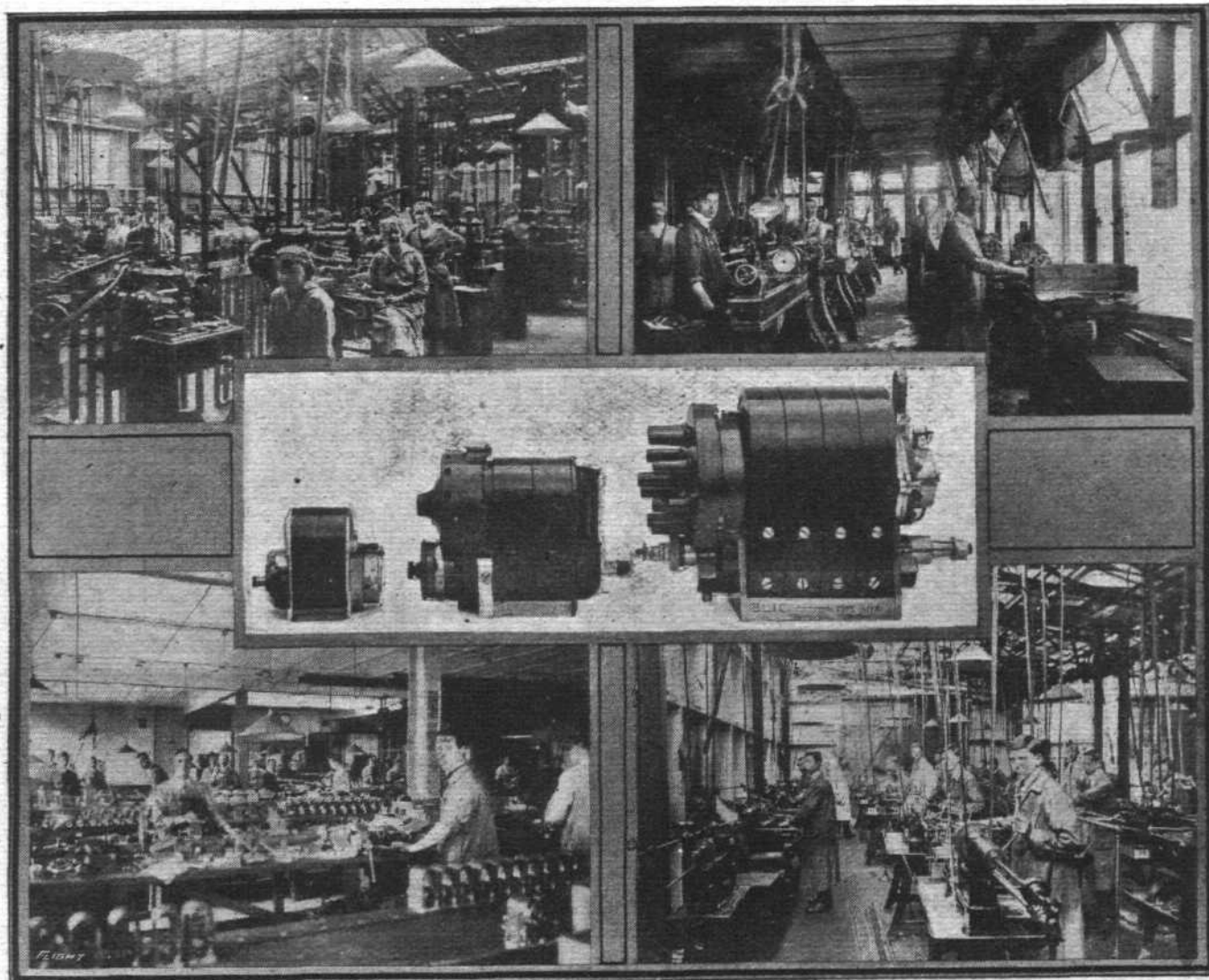
The model has been designed so that the main plane slips off, and the chassis folds up so that it may be packed in a cardboard box about a couple of feet long and about 6 inches wide. It may, therefore, be easily transported without any risk of breakage.

With all the parts finished and ready for fitting together the model, packed in a box with instructions, costs half a guinea, while the set of parts and materials, including a leaflet of full directions, costs 8s. 6d. which is a very reasonable figure, bearing in mind that everything is of the best quality for which Messrs. A. E. Jones, Ltd., have made such a good name for themselves among model makers in all parts of the world.

SIDE-WINDS.

A FEW snapshots taken in the workshops of the British Lighting and Ignition Company's huge premises in Tottenham Court Road which we give on this page are interesting as showing the activity now in progress under the proprietorship

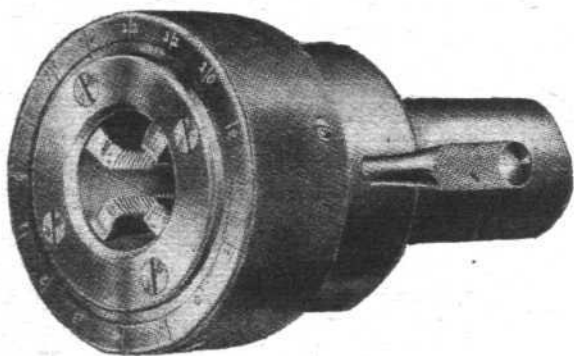
of Messrs. Vickers, Ltd. A walk through the factory leaves one with the impression that whether or no there is any trouble in the delivery of aero engines to the many constructors of aeroplanes, delay can be in no way occasioned by reason



AT THE "BLIC" MAGNETO WORKS.—Centre: Three types of machine now being manufactured in the works, weighing respectively 4, 16 and 63 pounds. Top: Left, heavy milling department; right, light turning. Bottom: Left, a corner of the assembling shop; and right, view of the turret section.

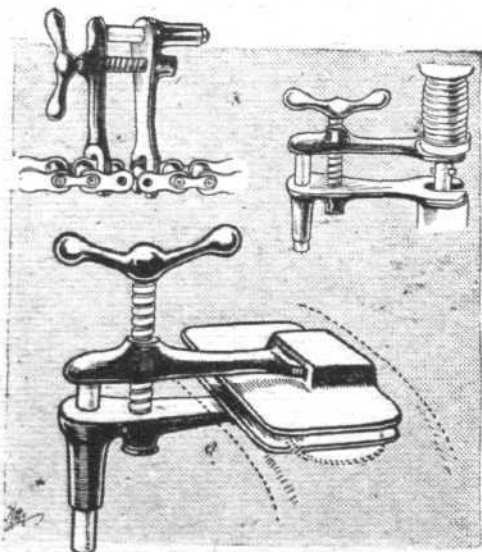
of inability to obtain magnetos. Here, one would think, are magnetos sufficient in quantity to supply the aero engines of the world, and heaps to spare, yet such is the demand, that almost to the exclusion of all else, "Blic" machines for aircraft are the one and immediate article of manufacture. For all that the company are not neglecting the many other calls for magnetos, as, for instance, for large stationery gas-engines. One of the models for this purpose is shown in the illustration; it is for large 8-cylinder engines, and weighs 63 lbs. Also the company have an eye on after-the-war necessities, and although the fact that they are engaged at the moment almost solely on aircraft requirements, does not mean that they are incapable of taking other work, they have laid down the necessary tools and equipment for a number of other types of machine, which will place them in a position, on the cessation of hostilities, to furnish at short notice, any type of magneto that may be required. Mr. Arthur Bennett is in charge as of old, and it is greatly due to his untiring energy and organising ability that much of the immediate success of the business, and the speed at which it is possible to fulfil orders lies.

A DIE HEAD, manufactured by the Murchey Co., of America, and stocked by their sole agents for this country, the Coats Machine Tool Co., Ltd., of Thanet House, Strand, is specially adaptable for use on the production of aeroplane parts. The die head was illustrated in our advertisement pages a short time ago, but is worthy of special notice by reason of the many advantages claimed by the makers for this die head over other types for the purposes under notice. It will thread



Nos. 2 and 4 British Association right and left hand. At the same time it has a capacity of $\frac{1}{4}$ in. Whitworth, 6 mm., or No. O.B.A., so that chasers can be supplied to thread up to all these diameters. To obtain continued accuracy, the bodies are made of hardened tool steel, carefully ground and lapped; the chasers being firmly held in hardened slots and packed by steel bearings, which give direct support where the strain of cutting is greatest. Head known as Type A. can be supplied in any size up to a total capacity of 12 in., and full particulars will be readily furnished by the Coats Machine Tool Co., Ltd., on application.

ONE of the most useful little tools lately placed on the market is the "Duco" combination valve spring lifter, chain puller,



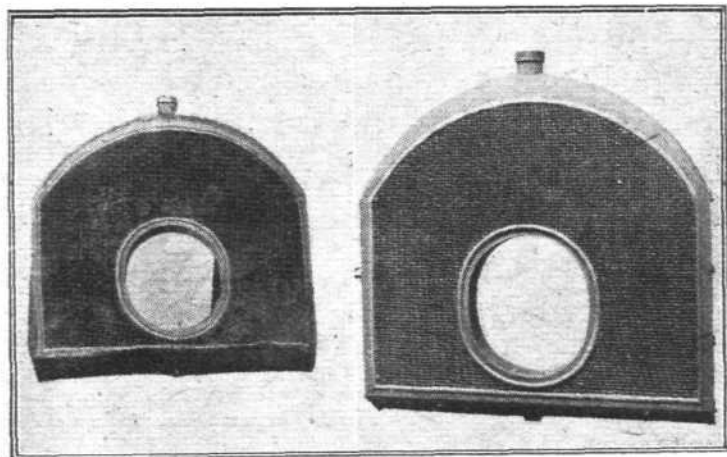
and patch press, which, although designed for motorists, will be found useful in and around an aeroplane workshop. Used in connection with the removal of valves, it gives a direct lift, thereby avoiding the danger of bent valves, and

in addition, leaving both hands free for the work in hand. The lifter is provided with two plates that easily slip into position when it becomes necessary to use the tool for pressing a repair patch on to the inner tube. As a chain puller, a glance at the illustration will show the method of using in one of these minor operations that fall to the lot of those who have to do with motors, and one where one always feels the want of half-a-dozen hands. With this device, the two ends of the chain can be pulled together, and held in position whilst the pin is inserted and fixed securely. A post card to Messrs. Brown Brothers will bring full particulars of this handy tool, the moderate prices of which in the two sizes for cycles or cars is a matter of 4s. 6d. for the former, complete with plates, and 6s. for the latter without plates. As the name "Duco" implies, it is sold by Messrs. Brown Brothers, of Great Eastern Street.

QUITE a strong little pin for use in aeroplane construction is being supplied by Adolphe Arbenz, of 35, Ludgate Hill, Birmingham. The pins are of the well-known semi-spherical brass-headed variety, with steel shanks, yet, members of a common family, they have a point of their own, in addition to the working one. The shank does not pass through or partly through the head, but is butted to the under part, and held strongly in position by a cone-shaped strengthener that is integral with the head and grasps the pin about half-way between the crown and the rim of the head, thus giving strength just where it is required to prevent that exasperating displacement of the head sideways when the pin is being driven into hard wood.

NOT entirely new to the business, inasmuch as they were manufacturing aero parts to Government specification before the war, the Rotax Motor Accessories Co., Ltd., have now, owing to insistent demand, laid down additional plant sufficiently large as to be able to guarantee early and substantial deliveries of the aero parts of their manufacture. Their latest catalogue just to hand, contains a comprehensive list with illustrations of the various lines handled by the firm, with the further information that any article therein contained, but required in slightly different sizes, can be secured on application to them, stating requirements. The list contains all the usual articles associated with the small parts necessary to the building of aeroplanes, and will be sent free on application to Rotax Works, Victoria Road, Willesden, N.W.10.

A RADIATOR which has been heavily damaged, often looks an impossible proposition from the repairer's point of view, but the experience of Messrs. Barimar is that it is very seldom if ever, that a radiator need be scrapped from this cause.



BEFORE AND AFTER.—The photograph on the left shows a Curtiss radiator as received at the Barimar works, while on the right the same radiator "as good as new" is seen after treatment by the Barimar experts.

One of our two photographs shows a radiator, off a Curtiss machine, which, to put it mildly, has been severely treated, or rather maltreated, yet the other photograph is of the identical radiator, after it had gone through a course of treatment at the Barimar hospital. So, however badly damaged a radiator may be, it will be worth while, especially at the present time when spare parts are so scarce, to send it along to Barimar, Ltd., 10, Poland Street, Oxford Street, W.

SPEAKING at the annual meeting of the Boddy Life-Saving Appliances (1914), Ltd., Mr. William Hammond, the chairman,

after referring to the considerable orders received for their life-saving jacket from the Admiralty, said the company had also brought out a special aviator's jacket, which was regularly supplied by the authorities for use in flying over the seas. Naturally, they received no testimonials from the Government, but they could judge by the increasing quantities supplied that the merit of their aviator's jacket is thoroughly recognised.

AMONG the visitors to London this week were Mr. Dick Farman, of Farman Frères, the well-known aeroplane builders,

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FATAL ACCIDENTS.

WHILE flying at a height of 1,500 ft. over Lincolnshire on August 27th, a machine piloted by Capt. Charles Butler, R.F.C., suddenly dived to the ground. Both the pilot and passenger—the latter a cadet—were killed.

2nd Lieut. T. T. Pritchard, R.F.C., was killed while flying in North Wiltshire on August 30th.

While flying about a mile off the shore at Montrose on August 30th, a machine piloted by 2nd Lieut. F. W. S. McLaren, M.P., R.F.C., suddenly nose-dived into the water and the pilot was so seriously injured that he died, shortly after being brought ashore, from internal injuries received in the fall.

Lieut. C. Roberts, R.F.C., was flying at Hanworth, near Hounslow, on September 1st, when his machine nose-dived to the ground and he was killed instantly. At the inquest the evidence showed that, whilst flying, the machine burst into flames, the wings fell apart, and that then there was an explosion, followed by a quick nose-dive to earth. It was stated that the machine was in order before going up, and that the petrol tank was discovered after the accident sound and intact. No leakage, therefore, could have taken place, and the cause of the flames was unexplainable. A verdict of "Accidental death" was returned.

Flight Sub-Lieut. J. E. Thomas, R.N., was killed at Yeovil on the morning of September 3rd, and a passenger, Mr. Robert Norton, was seriously injured. The machine rose successfully, but, in an attempt to turn, it nose-dived from a height of 300 to 400 ft. and was wrecked. The pilot was instantly killed and the passenger, who was found to be suffering from a dislocated hip, shock, and other injuries, was removed to hospital.

While flying along the south coast on September 3rd, a machine piloted by Lieut. Kinkead, R.F.C., nose-dived from a height of about 300 ft. and fell into a meadow near the railway line at Worthing. The pilot was killed and the machine was smashed.

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An Italian Raid on Vienna.

FROM its Turin correspondent the *Petit Journal* learns that five Italian aeroplanes have flown over Vienna and dropped packets of proclamations announcing the recent Italian victories. The Austrian capital is roughly about 190 miles from Gorizia, the nearest point in Italian hands.

A German Aeroplane in Holland.

WHILE making a trial flight on the evening of August 28th a German biplane landed at Valthermonde, in Holland. The two occupants will probably be interned.

Raid on Frankfurt Frustrated.

ACCORDING to the *Berliner Tageblatt*, "last Sunday (August 26th) another enemy air attack was attempted on Frankfurt-on-Main. An enemy squadron coming from the west was forced to return by our anti-aircraft guns halfway between Mainz and Frankfurt."

A Gas-bag Amok.

VARIOUSLY described as a large observation balloon and a wrecked airship, a gas bag passed over the southern part of Jutland in the direction of the Cattegat on August 31st. Steel ropes, carrying hooks, caused a good deal of damage to telegraph wires and roofs. It is also stated that some animals were killed. One message states that a man was seen in the car.

What Admiral Scheer Thinks.

IN an interview with a representative of the *Zurcher*, Post-Admiral Scheer, Commander of the German High Sea Fleet, is said to have declared that Zeppelins were an excellent overseas weapon, and hopes that the people of England will have further experience of them. "But bad weather," he added, "is a handicap to Zeppelins, and I believe that the future belongs to aeroplanes."

Admiralty Contracts for Aircraft.

AT the Old Bailey on Sept. 4th the case, in which Commander J. C. Porte and W. A. Casson, barrister, are charged with conspiring, together with Lyman J. Seeley, to contravene the provisions of the Prevention of Corruption Act in reference to payment of commission on Admiralty aeroplane contracts, was put over to the next sessions. Mr. Roome, for the Crown, said Commander Porte, who also had charges to answer, had not been committed for trial, and Casson was agreeable to the postponement. The Recorder renewed Casson's bail.

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PUBLICATION RECEIVED.

Catalogue.

Rotax Aircraft Fittings, 1917. The Rotax Motor Accessories Co., Ltd., Rotax Works, Victoria Road, Willesden Junction, N.W.10.

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NEW COMPANIES REGISTERED.

I.A.C. SYNDICATE, LTD.—Capital £5,000, in 4,000 preference shares of £1 each, and 4,000 ordinary shares of 5s. each. Acquiring certain agreements, options, &c., with French and Italian firms for the manufacture, and exploitation, in Great Britain, the Colonies and Dominions, of certain patents, &c., used in international aeroplane construction; also similar agreements, &c., for the manufacture, sale and exploitation of aviation motors. First directors:—J. A. Grant and F. H. Jacobs.

NOTTINGHAM AIRCRAFT MANUFACTURING CO., LTD., 32, King Street, Nottingham.—Capital £5,000, in £1 shares. Acquiring an invention relating to improvements in buffer springs for use in the landing gear of aircraft (provisional specification, 6,494, of 1917). First directors:—W. H. Pease and F. F. Butler.

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C. E. LYON, LTD.—Capital £5,000, in £1 shares. Manufacturers of and dealers in aircraft and parts and fittings thereof, &c. First directors: C. E. Lyon and L. G. Lyon.

ENGINEERING COMPONENTS, LTD., Reno Works, Rosslyn Crescent, Wealdstone.—Capital £7,500, in 5,000 ordinary and 2,500 7 per cent. preference shares of £1 each. Acquiring business carried on by W. H. Reynolds, Ltd., at Reno Works, Rosslyn Crescent, Wealdstone, marine, mechanical and motor engineers, manufacturers of aircraft components, aircraft and watercraft of all kinds, &c.

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Aeronautical Patents Published.

Applied for in 1916.

The numbers in brackets are those under which the Specifications are printed and abridged, &c.

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